BOROUGH OF LUTON

ANNUAL REPORT

of the

Medical Officer of Health

and the

Chief Sanitary Inspector

FOR THE YEAR 1946

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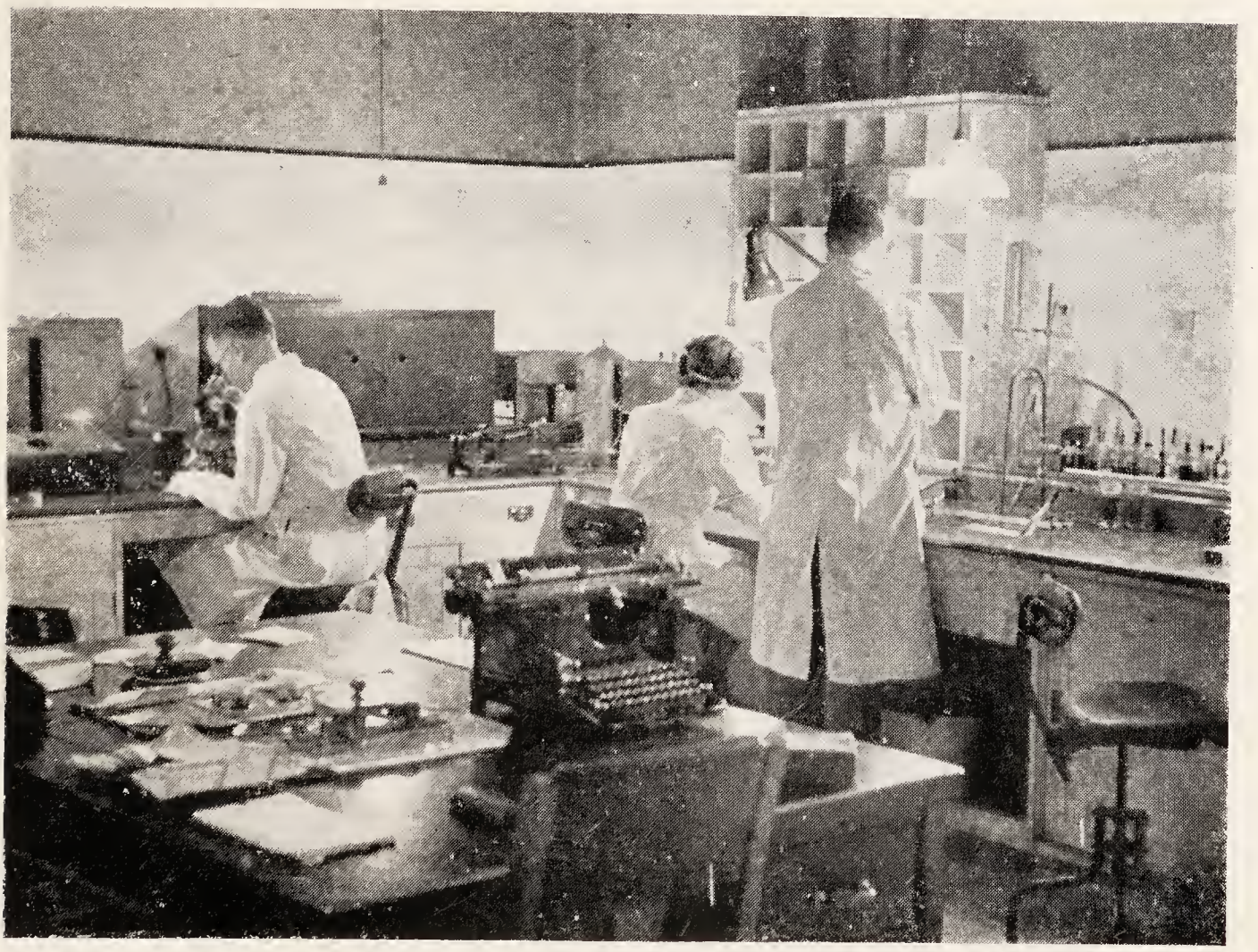
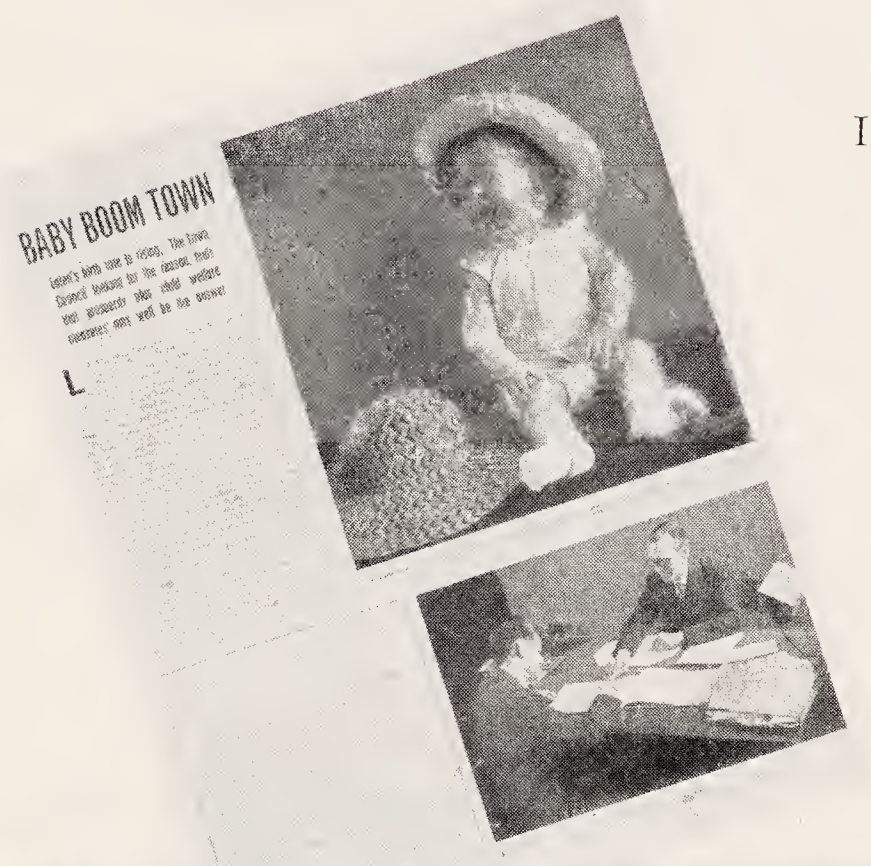
Chief Sanitary Inspector.

Visiting Students Viewing an Educational Exhibit.



A Corner of the Public Health Laboratory.

HEALTH EDUCATION



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CLINICS

BOROUGH OF LUTON

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APPENDICES

Public Health Department,
Town Hall,
LUTON.

10*th January*, 1947.

His Worship the Mayor, Aldermen and
Councillors of the Borough of Luton.

Ladies and Gentlemen,

The year 1946, the first full year of peace, will probably be remembered by the nation as a year of rehabilitation admixed with a sense of frustration. The experience of the Health Department has been not dissimilar.

A normal peace-time staff are once more at work, the lengthy task of fixing establishments and grading individual posts is nearing completion, and it can fairly be said that at the end of the year the departmental machine was once more ticking over smoothly.

None-the-less, 1946 has been a year of relative inaction, a year of uncertainty for planning purposes, a year of demarcation between established practices and half-determined future policy. In June, the status of the Borough was under review by the Local Government Boundary Commission, and it is not yet known what their recommendations will be. In October, 1946, the Health Service Act, 1946, became law, and its full implementation will affect in many ways the future functions of the Health Department, whatever the status of Luton may ultimately be.

As recently as December, negotiations were completed for the establishment of a Public Health laboratory in the Town Hall under the direct control of the Medical Research Council. This, the first fruits of the new administrative policy, means that laboratory work, which has been encouraged and fostered by the Borough Council since 1935, will pass out of their hands in the New Year. The transition has been effected smoothly and with the greatest possible courtesy. And if there is a natural regret at losing a child that has matured under the parental roof, there is the satisfaction of knowing that the infant we begat is passing into a well-connected family.

With the exception of the transfer of laboratory services, there has been no development of moment during the year. Statistical work has been expanded in many directions and valuable results are already coming to hand. The pioneer period of health education through the teaching of biology in schools is drawing to a close, and in some respects, the future functions of the health department are beginning to take shape.

Some aspects of statistical research which has been undertaken are referred to in appendices to this report. Appendix I is a table of vital statistics relating to the twelve year period 1934-45 ; Appendix II contains a survey of stillbirths and infant mortality ; and Appendix III is a note by your statistical consultant on " Some Statistical Aspects of Reproduction." They will, I hope, indicate to colleagues in general practice that good use is being made of the material which they provided for the use of the Health Department during 1945. They are examples of the kind of contribution a local health department can make to the re-stated concept

of social medicine. Their immediate application is not unexceptionally apparent. They are essentially part of a long-term policy for providing the kind of information upon which technically sound plans must be based.

The " Report on Luton," published in March ; " Families in Trouble," published in September ; and " Childlessness and the Small Family," published in the *Lancet* in November, have reached a public far beyond the confines of the borough. And it is gratifying to record that the Health Department has been visited by Medical Officers and others coming from as far afield as the Scandinavian countries, the U.S.A., New Zealand and Mexico, as well as by officers from Health Departments in this country.

The future of Health Education in schools is at present under discussion, and it may be that the time is opportune for the appointment of a biologist to the Education Committee and the transfer of biological teaching from the Public Health Department to the Education Department where it rightly belongs. This matter is referred to at greater length in Appendix IV.

It may be recalled that in 1944 I referred, in " A Note on the Vital Statistics of Luton," to emergent functions of Health Departments. In this note, the Medical Officer of Health is described as " less of a sanitarian and more of a teacher " ; and the importance of developing a statistical section within the Health Department is stressed. It has since become apparent that the Health Department of the future will be concerned increasingly with what might be called the social adjuncts of medicine. The development of nurseries for the reception of cases according to social need, the expansion of home help services, the control of home nursing services and greater attention to social problems are clearly envisaged by the outline of health services contained in the new enabling act of 1946.

The Borough Council has already gone some distance in the development of certain socio-medical services in anticipation of what is to be. The limited amount of progress which has been possible reflects rather the general shortage of man-power than a lack of drive and foresight.

The population increased from 100,000 or thereabouts at the beginning of the year to over 107,000 at the end of 1946. The Registrar-General estimated the civilian population at the 30th June, 1946, to be 105,230.

The birth rate for 1946 was higher than for 1945 (i.e., 20.6 as against 18.9) though considerably lower than the peak reached in 1944 (22.7).

Until the last quarter of the year there was no unusual incidence of notifiable infectious disease. Twenty-three cases of diphtheria were notified, one of which (in an unimmunised child) ended fatally. Up to the end of September 32 cases of measles were notified, and during the last quarter 518 cases were notified.

Two points of special interest are worth mentioning here : the first, that the five notified cases of anterior poliomyelitis were apparently unconnected with each other ; the second, that the form assumed by scarlet fever, though not more severe than we have become accustomed to, resembled more than for some years the classical picture of the text book.

The stillbirth rate was considerably higher than for the previous year (31.8 as against 26.6), but the infantile mortality rate again fell slightly

(31 for 1946 as against 33 for 1945) reaching, therefore, a new low level for the borough.

It should not be forgotten, however, that mortality statistics, though valuable as indices of the healthiness of a community, are relatively crude. They measure indirectly the incidence of serious diseases, but they tell us nothing about health in a positive sense. They are not, in other words, a measure of the vigour of the individuals who make up a community. Of this there is no statistical index, and reliance has to be placed on general impressions.

My own impression—and that of many of my colleagues—is that vigour and the will to work, which derive mainly from a sense of abounding energy, have waned during the last year. This impression may be fallacious, for general impressions often are. But if there is anything in it, then it is worth while speculating about possible causes.

It is natural to think of the reaction following upon a long period of war-time strain, and equally natural to take into account the undoubted sense of frustration which is probably unavoidable during a transition period. As a Health Officer, however, I prefer first to examine material causes, and I cannot help thinking that the relative deficiency of animal fats and first-class protein and the lack of variety in our diet have something to do with the existing situation.

A story is told in the West Riding of Yorkshire of a certain Dick Delaney, a hawker who kept a donkey. With profit in mind, he progressively reduced the donkey's fodder, and for a time all seemed to go well. His astuteness was acclaimed by his acquaintances until at last he had to confess the failure of his scheme through a fault in the donkey. For, as he said, " Just as the darn thing got used to it, it died."

It is true that even a well fed donkey may have to be coaxed to work by a carrot, or be goaded into work by a whip ; but in the long run, neither the carrot nor the whip can be effective if the donkey is not well fed—well fed, in the sense that it gets, without undue foraging, more than food enough for its immediate requirements.

Judged by the maternal mortality rate and the infantile death rate all seemed to be well during 1946, but a scrutiny of certain maternity statistics reveals unpalatable facts.

The records of municipal midwives show that the percentage of cases where medical aid was summoned increased substantially ; and hospital records show a startling increase in the proportion of cases in which a doctor intervened and also which terminated as forceps deliveries.

The rise in medical aid cases began in August, and for the period 1st August to 31st December the percentage of cases where medical aid was summoned was 42 as compared with an average of 27 per cent. for the period 1941-45.

The adverse change in hospital practice began in July, and for the six months' period 1st July to 31st December doctors' cases were 16 per cent. of all hospital deliveries and there was a recorded forceps rate of 10 per cent.

These figures compare respectively with averages of 8.5 per cent. and 6 per cent. for the period 1942-45.

The statistics confirm many independent opinions that during the second half of 1946 women fared worse during labour both in district practice and in hospital than at any time during the war years—although the war figures were substantially worse than those recorded in 1938 or 1939.

I am advised that women attending ante-natal clinics have complained more of fatigue during the latter half of 1946 than they did during periods of most severe war strain, and it appears that when they go into labour a greater proportion lack either the muscular staying power or the will to deliver themselves.

It is not possible on the facts available to explain the unexpectedly abrupt deterioration ; it may be that we have in these maternity statistics a sensitive index of the effects of cumulative fatigue and sub-optimal diet.

If the deterioration is general—and there is no particular reason why it should have occurred only in Luton—then it is a warning that something is seriously wrong and a pointer to a situation that calls for urgent and searching investigation on a national scale.

There have been many important staff changes during the year. Mrs. D. M. MacLeod, Superintendent Health Visitor since 1923, has sought a well-earned retirement. Dr. Thomas Ross, Deputy Medical Officer since 1942, was appointed in December to the post of Medical Officer of Health to the Borough of Swindon. Dr. Geoffrey Ludgater, who had charge of the Council's laboratory service from September, 1939, to November, 1946, left to take up an appointment as Pathologist to the Burton-on-Trent General Infirmary.

For these officers, as for the entire staff of the Health Department, I have nothing but praise. They have, without exception, given a good account of themselves and enabled the work of the department to be carried out with efficiency and with great consideration for the public we serve. Your Public Health Committee, individual members of the Council, and colleagues in other departments have supported the work of the Health Department so completely, so unselfishly, and with such friendliness that my own task has been both light and pleasurable.

Finally, I must refer to the support I have had from Councillor W. G. Roberts, Chairman of the Public Health Committee. It is not too much to say that a great deal of the research and pioneer work of the department is directly traceable to his foresight, enthusiasm and unfailing warm encouragement.

I have the honour to be,

Your obedient servant,

F. GRUNDY,

Medical Officer of Health.

STATISTICS AND SOCIAL CONDITIONS OF THE AREA.

GENERAL STATISTICS.

Area (from 1st April, 1939)	8,736	acres
Population (Census, 1931)	68,523	
Registrar-General's Estimate for mid-1946 (Provisional)	105,230	
Number of inhabited houses, 1st April, 1946	28,594	
Rateable value (1st April, 1946) unreduced	£878,911	
Rateable value (1st April, 1946) reduced	£772,670	
Sum represented by Penny Rate (est. 1946-47)	£3,150	

EXTRACTS FROM VITAL STATISTICS FOR THE YEAR 1946

		Total	*Males*	*Females*
Notified live births	Legitimate ...	2,368	1,177	1,191
	Illegitimate ...	180	74	106
	All	2,548	1,251	1,297
Notified stillbirths	Legitimate ...	83	48	35
	Illegitimate ...	3	2	1
	All	86	50	36

Total Live and Stillbirths (Notified) ...	2,634	
Stillbirth Rate per 1,000 total (live & still) births		31.8
Registered live births*	2,165	
Live Birth Rate per 1,000 of estimated resident population (provisional)		20.6

	Total	*Males*	*Females*
Registered Deaths*	1,004	497	507

Death rate per 1,000 estimated resident population 9.5

Deaths from Puerperal Causes (Headings 29 and 30 of Registrar-General's short list) :—

	Deaths.	*Rate per 1,000 registered total births.*
No. 29 Puerperal Sepsis ...	2	0.9
No. 30 Other Puerperal causes	2	0.9
Total	4	1.8

Death Rates of Infants under 1 year of age :—

All Infants per 1,000 registered live births (provisional) ...	31
Legitimate per 1,000 legitimate live births (provisional) ...	29
Illegitimate per 1,000 illegitimate live births (provisional)	70

* Corrected for inward and outward transfers.

TABLE 1.

BIRTH RATES, DEATH RATES, ANALYSIS OF MORTALITY, MATERNAL DEATH RATES AND CASE RATES FOR CERTAIN INFECTIOUS DISEASES IN THE YEAR 1946.

(England and Wales, London, 126 Great Towns and 148 Smaller Towns)
(Provisional figures based on Weekly and Quarterly Returns).

(Gummed slip to follow)

TABLE 2. COMPARATIVE STATISTICS FOR 1936—1946.

Year	Estimated Population	LIVE BIRTHS		STILLBIRTHS		DEATHS		INFANT DEATHS			Rate per 1000 live births	MATERNAL DEATHS			
		Number	Rate per 1000 estimated population	Number	Rate per 1000 total births	Number	Rate per 1000 estimated population	Under 4 weeks	4 weeks —12 months	TOTAL		Number			Rate per 1000 total births
												Sepsis	Other	Total	
1936	85,600	1,406	16.4	65	46.3	852	10.0	28	21	49	34	2	4	6	4.06
1937	89,360	1,530	17.1	61	38.3	935	10.5	33	24	57	37	—	6	6	3.77
1938	90,840	1,567	17.3	49	30.3	872	9.6	45	25	70	44	2	4	6	3.71
1939	94,110	1,528	16.5	61	38.4	945	10.0	34	23	57	37	1	3	4	2.51
1940	99,440	1,543	15.0	35	21.3	1,128	11.3	40	42	82	53	—	2	2	1.21
1941	103,990	1,440	13.9	47	31.6	1,036	10.0	38	36	74	49	—	2	2	1.29
1942	101,600	1,820	18.0	69	36.5	998	9.8	42	39	81	44	—	1	1	0.52
1943	98,950	1,902	19.2	60	30.6	994	10.0	41	39	80	42	2	5	7	3.56
1944	100,640	2,282	22.7	58	24.8	1,040	10.3	40	43	83	36	—	3	3	1.3
1945	100,600	1,905	18.9	52	26.6	960	9.5	34	28	62	33	1	2	3	1.5
1946	105,230	2,165	20.6	71	31.8	1004	9.5	51	17	68	31	2	2	4	1.8

TABLE 3. DEATHS OF LUTON RESIDENTS DURING THE YEAR 1946.

CAUSE OF DEATH	All Ages	Under 4 weeks	1 month to 1 year	Total under 1 year	1-5	5-10	10-15	15-25	25-35	35-45	45-55	55-65	65-75	75+
1. Typhoid and Paratyphoid Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Cerebro-spinal Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3. Scarlet Fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4. Whooping Cough	4	—	3	3	1	—	—	—	—	—	—	—	—	—
5. Diphtheria	1	—	—	—	1	—	—	—	—	—	—	—	—	—
6. Tuberculosis of Respiratory System	59	—	—	—	1	1	—	8	13	4	10	16	6	—
7. Other forms of Tuberculosis ...	5	—	—	—	2	—	1	—	2	—	—	—	—	—
8. Syphilitic Disease	5	—	—	—	—	—	—	—	—	1	1	3	—	—
9. Influenza	16	—	—	—	—	—	1	1	—	3	3	1	4	3
10. Measles	1	—	1	1	—	—	—	—	—	—	—	—	—	—
11. Acute Poliomyelitis and Polio-encephalitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12. Acute Infectious Encephalitis ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13M. Cancer of Buccal Cavity and Oesophagus	2	—	—	—	—	—	—	—	—	—	—	1	1	—
13F. Cancer of Uterus	13	—	—	—	—	—	—	—	—	1	5	3	1	3
14. Cancer of Stomach and Duodenum	32	—	—	—	—	—	—	—	—	2	5	12	9	4
15. Cancer of Breast	19	—	—	—	—	—	—	—	1	1	7	6	3	1
16. Cancer of all other sites	89	—	—	—	—	—	—	3	1	11	9	18	23	24
17. Diabetes	17	—	—	—	—	—	—	—	—	—	1	1	8	7
18. Intra-cranial Vascular Lesions ...	132	—	—	—	—	—	—	—	—	3	5	29	37	58
19. Heart Disease	269	—	—	—	—	—	—	4	1	6	11	44	84	119
20. Other Diseases of the Circulatory System	21	—	—	—	—	—	—	—	2	—	—	3	6	10
Carried forward	685	—	4	4	5	1	2	16	20	32	57	137	182	229

DEATHS OF LUTON RESIDENTS DURING THE YEAR 1946 (continued)

CAUSE OF DEATH	All Ages	Under 4 weeks	1 month to 1 year	Total under 1 year	1-5	5-10	10-15	15-25	25-35	35-45	45-55	55-65	65-75	75+
Brought forward	685	—	4	4	5	1	2	16	20	32	57	137	182	229
21. Bronchitis	31	—	1	1	—	1	—	—	—	2	3	2	3	19
22. Pneumonia	31	1	2	3	1	1	—	—	1	3	3	6	4	9
23. Other Respiratory Diseases ...	13	1	1	2	—	1	—	1	—	2	2	1	3	1
24. Ulceration of the Stomach or Duodenum	9	—	—	—	—	—	—	—	1	1	1	1	3	2
25. Diarrhoea (under 2 years) ...	4	3	1	4	—	—	—	—	—	—	—	—	—	—
26. Appendicitis	5	—	—	—	—	2	—	—	—	—	1	2	—	—
27. Other Digestive Diseases ...	20	—	2	2	—	—	—	—	—	5	3	1	6	3
28. Nephritis	16	—	—	—	—	1	—	—	2	—	5	1	3	4
29. Puerperal and Post Abortive Sepsis	2	—	—	—	—	—	—	—	2	—	—	—	—	—
30. Other Maternal Causes	2	—	—	—	—	—	—	—	2	—	—	—	—	—
31. Premature Birth	30	28	2	30	—	—	—	—	—	—	—	—	—	—
32. Congenital Malformations, Birth Injury, Infantile Disease	20	17	—	17	2	—	—	—	—	1	—	—	—	—
33. Suicide	8	—	—	—	—	—	—	1	1	—	1	2	2	1
34. Road Traffic Accidents	8	—	—	—	—	1	—	1	3	—	—	1	1	1
35. Other Violent Causes	22	—	3	3	—	1	—	1	3	—	1	2	1	10
36. All Other Causes	98	1	1	2	1	2	—	2	1	8	1	8	18	55
Totals	1004	51	17	68	9	11	2	22	36	54	78	164	226	334

TABLE 4.

NOTIFIED INFECTIOUS DISEASES, 1946 Civilian (Corrected in cases of revised diagnosis).

	Under 1 year	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-25	25-35	35-45	45-65	Over 65	TOTAL
Scarlet Fever	—	2	4	7	11	74	59	2	—	6	6	1	—	172
Diphtheria	—	—	—	1	1	7	6	1	4	2	1	—	—	23
Whooping Cough	14	22	18	21	12	29	1	—	—	1	—	—	—	118
Measles	5	35	78	99	73	249	8	—	1	2	—	—	—	550
Pneumonia	3	1	1	2	6	3	5	2	—	5	18	14	10	70
Anterior Poliomyelitis	—	—	1	2	—	1	—	—	—	1	—	—	—	5
Dysentery	1	9	2	7	1	10	8	2	3	6	3	10	18	80
Ophthalmia Neonatorum ...	4	—	—	—	—	—	—	—	—	—	—	—	—	4
Puerperal Pyrexia	—	—	—	—	—	—	—	1	11	14	2	—	—	28
Cerebro Spinal Fever	—	1	—	1	—	1	1	1	—	1	—	—	—	6
Erysipelas	—	—	—	—	—	—	1	—	—	2	4	4	2	13
Jaundice	—	—	—	—	—	9	5	2	—	4	2	—	—	22
Malaria	—	—	—	—	—	—	—	—	—	2	—	—	—	2
Totals	27	70	104	140	104	383	94	11	19	46	36	29	30	1,093

DIPHTHERIA IMMUNISATION

Number of children immunised under the Council's scheme, 1942-46.

	Under 5 years	*Over 5 years*	*Total*
1942	1,836	1,038	2,874
1943	1,659	1,938	3,597
1944	1,037	97	1,134
1945	1,225	189	1,414
1946	1,191	105	1,296

TABLE 5.

Number of Children who had completed a full course of Immunisation at any time up to 31st December, 1946.

(According to Health Department Records)

Age at 31.12.46	Under 1 year	1 year	2 years	3 years	4 years	5 to 9 years	10 to 14 years	Total under 15
Number Immunised	0	1,056	1,188	911	585	5,291	5,991	15,022
Estimated mid-year population, 1946	8,630					17,232		25,862

	Under 5 years	*Between 5 and 15 years*
Estimated percentage of the child population immunised at 31st December, 1946 ...	43%	65%

(*a*) Number of cases of diphtheria in children under 15 years of age notified during the year	15
(*b*) Number of cases included in (*a*) in which the child is known to have completed the course of immunisation not less than 12 weeks before the onset of the disease	5
(*c*) Number of deaths from diphtheria registered in the Authority's area during the year, of children under 15 years of age ...	1
(*d*) Number of deaths included in (*c*) in which the child is known to have completed the course of immunisation not less than 12 weeks before the onset of the disease	0

OPHTHALMIA NEONATORUM

(*a*) Number of cases notified during the year	4
(*b*) Number of cases visited by officers of the Council	4
(*c*) Number of cases removed to hospital	3
(*d*) Number of cases for whom home nursing was provided by the Council	1
(*e*) Number of cases in which vision was impaired	Nil

DIPHTHERIA IMMUNISATION.

DEATHS FROM DIPHTHERIA ARE SHOWN IN BRACKETS ON GRAPH.

PERCENTAGE OF IMMUNISED POPULATION 0-15 YEARS IN BRACKETS AT FOOT OF GRAPH.

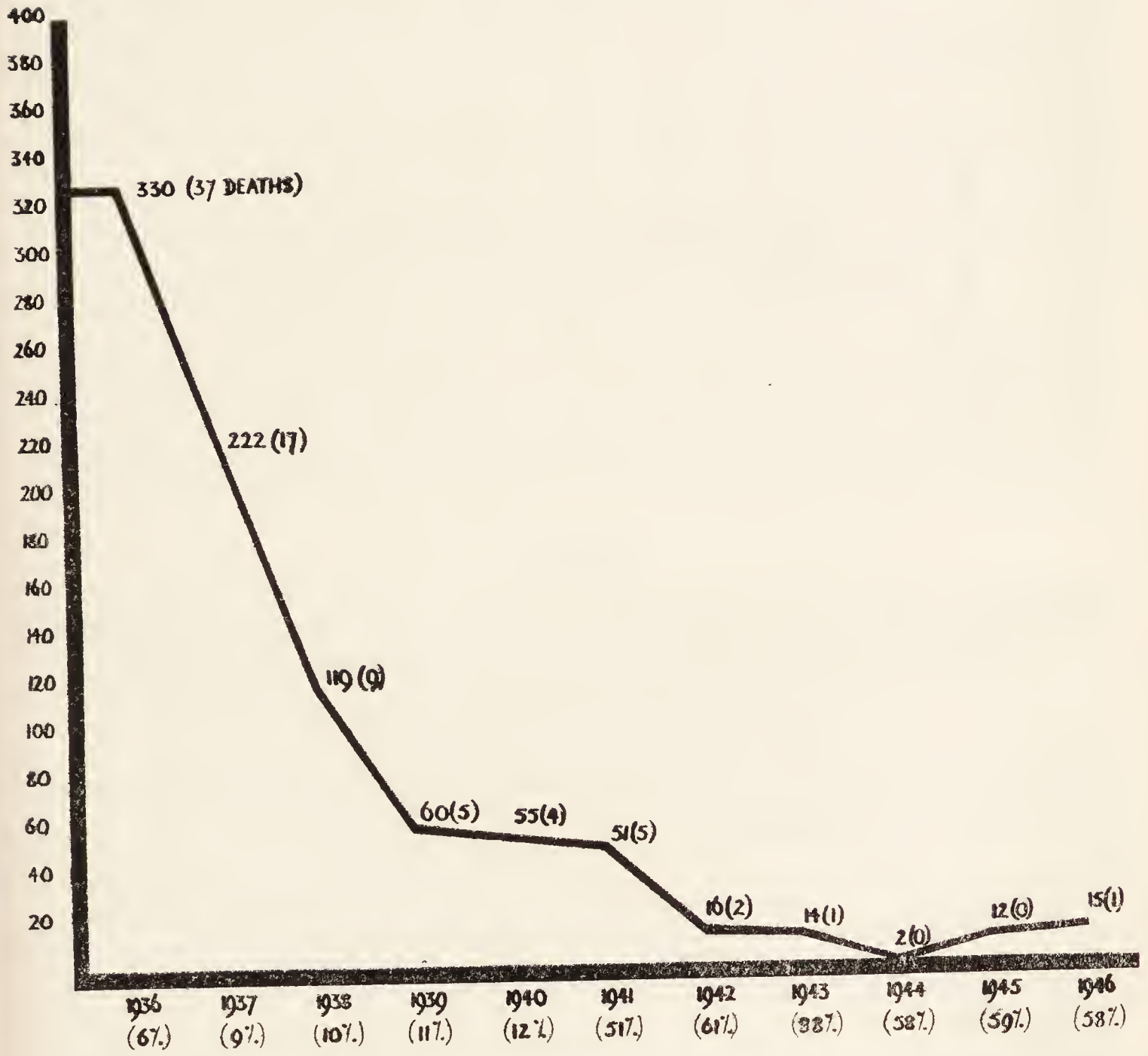

TABLE 6.

PARTICULARS OF NEW CASES OF TUBERCULOSIS AND ALL DEATHS FROM THE DISEASE DURING 1946.

Age Periods	New Cases				Deaths			
	Pulmonary		Non-Pulmonary		Pulmonary		Non-Pulmonary	
	M.	F.	M.	F.	M.	F.	M.	F.
Under 1 year	—	—	—	—	—	—	—	—
1 ,,	7	1	1	1	1	—	—	2
5 ,,	8	2	3	4	1	—	—	—
10 ,,	4	2	1	2	—	—	1	—
15 ,,	7	2	2	2	2	1	—	—
20 ,,	15	8	2	2	—	5	—	—
25 ,,	20	18	—	3	4	9	2	—
35 ,,	9	7	1	1	1	3	—	—
45 ,,	10	7	—	—	4	6	—	—
55 ,,	6	1	1	—	14	2	—	—
65+	4	3	1	—	4	2	—	—
Age Unknown	—	—	—	—	—	—	—	—
Totals ...	90	51	12	15	31	28	3	2

TABLE 7.

DISTRIBUTION OF NOTIFIED TOTAL BIRTHS AS BETWEEN INSTITUTIONAL AND DOMICILIARY CONFINEMENT.

Uncorrected for Outward Transfers.

Year	Institutional					Domiciliary				Grand Total
	B.M.H.	Em. Unit	P.A.I.	Private Nsg. Home	Total	Mun. M/W	Notified by Private M/W	Notified by Dr. & Parents	Total	
1936	28	—	42	202	272	—	770	423	1,193	1,465
1937	445	—	19	169	633	124	527	390	1,041	1,674
1938	540	—	26	172	738	477	271	210	958	1,696
1939	568	84	38	166	856	583	131	109	823	1,679
1940	588	175	21	194	978	674	—	106	780	1,758
1941	583	504	46	216	1,349	463	—	162	625	1,974
1942	576	681	58	329	1,644	508	3	196	707	2,351
1943	533	535	115	467	1,650	451	1	224	676	2,326
1944	631	699	190	508	2,028	534	39	156	729	2,757
1945	610	621	114	476	1,821	407	50	62	519	2,340
1946	667	678	215	582	2,142	397	—	95	492	2,634

TABLE 8.

STILLBIRTHS.‡

Cause	B.M.H.	Em. Unit	L. & D.H.	St. Mary's Hosp.	Doctor	Midwife	Nursing Home	Total
Maternal Toxæmia	3	4	—	—	—	1	1	9
Chronic Maternal Disease ...	—	—	1	—	—	—	—	1
Foetal malformation	1	2	1	1	1	3	1	10
Prematurity ...	1	1	—	—	—	—	1	3
Complications of labour ...	17	7	—	2	1	3	5	35
Other	9*	5†	—	4ø	—	2	4	24
Total ...	31	19	2	7	2	9	12	82

‡ Excluding outcome of multiple pregnancies.

* 5 Macerated. † 2 Macerated. ø 4 Macerated.

GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA.

1 (A). BACTERIOLOGICAL AND PATHOLOGICAL WORK.

(Municipal laboratory)

Total number of examinations carried out	**7,868**
Public Health Department	5,307
Other Local Authorities	**969**
Beds. County Council	289
Dunstable Borough	91
Leighton Buzzard U.D.C.	132
Luton R.D.C.	139
Isolation Hospital, Dunstable	205
Other Authorities	113
Luton Children's Hospital	792
Beds. National Health Insurance Committee	255
Pathologist's private practice	545
Bacteriological examinations	**6,085**
Diphtheria	2,258
Biological	33
Complement fixation tests (not performed in this laboratory)	206
Other examinations	3,588
Biochemistry	**253**
Blood examinations	78
Urine examinations	102
Miscellaneous examinations	73
Sanitary Investigations	**514**
Water investigations	257
Milk ,,	171
Miscellaneous ,,	86
Haematology	**886**
Histology	**69**
Post mortem examinations	**61**

1 (B). PROFESSIONAL NURSING IN THE HOME.

No change.

1 (C). CLINICS AND TREATMENT CENTRES.

No change.

TABLE 9.

NUMBER OF ATTENDANCES AT ANTE-NATAL CLINICS DURING THE YEAR 1946.

1946	Maternity Hospital		Beechwood Health Centre		Total Att'ces	Post-Natal Clinic Total Attends	School for Mothers Total Attends
	First Attends	Subs. Attends	First Attends	Subs. Attends			
January ...	7	288	213	706	1,214	39	48
February ...	9	272	174	690	1,145	33	55
March	12	295	161	755	1,223	34	86
April	4	250	126	816	1,196	36	17
May	8	319	175	877	1,379	104	50
June	8	277	112	746	1,143	48	58
July	6	289	150	997	1,442	67	32
August	9	347	172	729	1,257	54	62
September ...	7	299	170	736	1,212	61	53
October ...	50	337	181	971	1,539	81	39
November ...	6	322	173	795	1,296	52	38
December ...	3	254	123	794	1,174	10	—
Totals ...	129	3,549	1,930	9,612	15,220	619	538

TABLE 10.

ATTENDANCES AT ANTE-NATAL CLINICS, 1936—1946.

	First Attendances	Subsequent Attendances	Total Attendances
1936	384	1,035	1,419
1937	927	3,264	4,191
1938	1,018	3,686	4,704
1939	1,616	3,967	4,960
1940	1,630*	6,782*	8,412*
	695	2,025	2,720
1941	2,022*	8,416*	10,438*
	587	1,788	2,375
1942	2,136*	12,729*	14,865*
	652	3,022	3,674
1943	2,038*	13,470*	15,508*
	611	2,855	3,466
1944	2,170*	15,092*	17,362*
	535	2,020	2,555
1945	1,918*	12,930*	14,848*
	420	1,485	1,905
1946	2,585*	14,638*	17,223*
	526	1,477	2,003

* Includes Municipal Midwives' figures shown immediately below

TABLE 11.

NUMBER OF CONSULTATIONS, WEIGHINGS, ETC., AT INFANT WELFARE CENTRES, DURING THE YEARS 1941—1946.

	First Attendances		No. on Register at end of year	Consulta-tions	Infants weighed
	Under 1 year	1-5 years			
1941	1,427	525	4,085	4,952	32,990
1942	1,449	209	3,865	—	21,124
1943	1,508	132	3,829	—	28,262
1944	2,199	262	3,996	—	33,223
1945	1,645	128	3,585	—	30,364
1946	1,789	248	3,695	—	30,427

Infants requiring supervised treatment who attended at the above centres were referred to the Dallow Road Minor Ailments Clinic; 2041 attendances were made for treatment purposes.

INSTITUTE OF RAY THERAPY.

136 Cases were treated at the Institute on behalf of the Local Authority. Lump sum payment £50.

DENTAL CLINIC.

Adults—

No. of sessions	49
No. of patients referred	136
No. of patients who attended	93
No. of attendances made	362
No. of cases in which dentures were supplied	19
Cost of dentures	£104 14s. 0d.
Amount recoverable from patients	£69 2s. 8d.

Children—

No. of patients referred	66
No. of patients who attended	98
No. of attendances made	162

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN.

During the year 1946 the Inspectors were responsible for dealing with 41 cases on behalf of the Department.

TABLE 12.

HOME VISITS BY HEALTH VISITORS.

	Children under 1 year		Children 1-5 years		Expectant Mothers		Special Visits Infectious Disease, etc.	Infant Life Protection	Total Visits
	First Visits	Re-Visits	First Visits	Re-Visits	First Visits	Re-Visits			
1939 ...	1,656	5,590	863	10,762	—	503	4,530	352	23,156
1940 ...	1,679	3,993	239	8,099	—	325	6,376	205	20,196
1941 ...	1,963	5,008	112	8,583	—	219	5,422	131	21,438
1942 ...	2,203	5,698	273	7,765	—	56	8,665	65	24,725
1943 ...	1,986	8,594	45	8,603	—	238	4,997	203	24,666
1944 ...	2,760	7,981	173	7,451	—	171	3,980	288	22,804
1945 ...	2,608	6,233	183	8,399	—	66	3,417	489	21,395
1946 ...	2,394	4,948	181	7,744	60	19	4,352	250	19,948

BURY PARK CLEANSING STATION.

Total attendances at cleansing station	3,852
Number of treatments by bathing	2,488
Number of heads cleansed	1,068
Number of individual cases of scabies treated during the year ...	1,518
Number of follow-up visits paid to homes	—

PUBLIC HEALTH ACT, 1936, PART VII.
CHILD LIFE PROTECTION.

Number of persons who were receiving children for reward at the end of the year	8
Number of children :	
(*a*) At the end of the year	22
(*b*) Who died during the year	—
(*c*) On whom inquests were held during the year	—
Number of child protection visitors at the end of the year who were :	
(*a*) Health visitors...	1
(*b*) Female, other than health visitors	—
(*c*) Male	2
Number of other authorised visitors	Nil
Proceedings taken during the year	Nil

ADMINISTRATION OF THE MIDWIVES' ACTS.

Distribution of Midwives, 31st December, 1946.

(*a*)	Private Practice (Independent)	2
(*b*)	Municipal Midwives	8
(*c*)	In Private Nursing Homes	6
(*d*)	Public Assistance Institution	9
(*e*)	Borough Maternity Hospital	17

TABLE 13.

NOTIFICATIONS RECEIVED FROM MIDWIVES.

	Nursing Homes	Municipal Mdwves.	P.A.I.	Mat. Hosp. & Ext.	Independent Practice	Total
(*a*) Intention to practise ...	6	8	9	23	2	48
(*b*) Intention to cease practise	—	—	—	6	—	—
(*c*) Change of address ...	—	—	—	—	—	—
(*d*) Change of name ...	—	—	—	—	—	—
(*e*) Sending for medical help	1	89	—	1	—	91
(*f*) Stillbirths occurring in practice	—	9	—	—	—	9
(*g*) Deaths occurring in practice—						
(i) Mothers ...	—	—	—	—	—	—
(ii) Infants	—	1	—	—	—	1
(*h*) Laying out the dead ...	—	6	—	—	—	6
(*i*) Liability to be a source of infection	—	—	—	—	—	—
(*j*) Substitution of artificial feeding	1	5	—	—	—	6

Supervisor of Midwives.

Routine inspection visits	—
„ „ „ (Midwife out)	—
Special enquiry visits in respect of notifications :	
(*a*) Medical help	68
(*b*) Stillbirths	18
(*c*) Deaths occurring in practice	—
(*d*) Ophthalmia Neonatorum	1
(*e*) Laying out the dead	—
(*f*) To supervise disinfection	—
Other visits :	
Puerperal Pyrexia	5
Home helps	107
Nursing mothers	92
Labour visits	2
Nursing Homes	46
Administration of Gas and Air Analgesia	—
Ante-Natal and Post-Natal	124
Administration	765
Total	1,228
Ante-Natal Clinics attended	152

Medical Aid.

During the year medical aid was sought in 89 of the midwives' cases.

During this period 77 accounts amounting to £124 12s. 0d. were received from medical practitioners for services rendered in response to requests for medical help from midwives, and the sum of £99 3s. 0d. is recoverable from patients.

TABLE 14.

NUMBER OF CASES ATTENDED BY MIDWIVES.

District Number	Acting as Midwife	Acting as Maternity Nurse	Total
1	54	25	79
2	—	—	—
3	36	8	44
4	46	21	67
5	46	26	72
6	21	19	40
7	28	28	56
8	17	20	37
Total	248	147	395

TABLE 15.

NUMBER OF VISITS PAID BY MIDWIVES.

District Number	Expectant Mothers	Nursing Mothers	Post-Natal	Total
1	1,111	2,389	301	3,801
2	—	—	—	—
3	398	799	104	1,301
4	570	1,280	170	2,020
5	450	1,394	107	1,951
6	137	682	54	873
7	608	1,280	153	2,041
8	93	551	45	689
Total ...	3,367	8,375	934	12,676

TABLE 16. NUMBER OF PATIENTS ATTENDING MIDWIVES' ANTE-NATAL CLINICS.

District Number	No. of Clinics	No. of First Attendances	Subsequent Attendances	Total
1	27	143	386	529
2	—	—	—	—
3	15	52	162	214
4	22	80	277	357
5	23	53	158	211
6	23	35	125	160
7	22	111	216	327
8	22	52	153	205
Total ...	154	526	1,477	2,003

TABLE 17.

NUMBER OF PATIENTS ATTENDING CONSULTANT CLINICS.

District Number	No. of Clinics Attended	Attendances of Patients		Total
		Ante-natal	Post-natal	
1	44	252	29	281
2	—	—	—	—
3	10	75	5	80
4	18	133	6	139
5	21	52	6	58
6	11	28	1	29
7	34	114	8	122
8	12	27	4	31
Total ...	150	681	59	740

TABLE 18.

LEGITIMATE LIVE BIRTHS OCCURRING IN THE MUNICIPAL MIDWIFERY SERVICE DURING 1946.

(excluding multiple births)

The number of previous pregnancies (irrespective of outcome) being:

Age of Mother at Maternity	Pregnancy Order (including present pregnancy)									Total
	1	2	3	4	5	6	7	8	9+	
Years										
15–20	3	1	1	—	—	—	—	—	—	5
20–25	34	20	5	—	—	—	—	—	—	59
25–30	21	26	19	12	5	2	—	—	—	85
30–35	4	47	38	20	6	7	2	—	—	124
35–40	5	6	18	17	5	8	4	5	3	71
40–45	—	1	6	2	3	—	1	—	—	13
45+	—	—	—	—	—	—	—	—	—	—
All Ages	67	101	87	51	19	17	7	5	3	357

Multiple births ... 6 Illegitimate births 19

Stillbirths ... 9

TABLE 19.

NURSING HOMES REGISTRATION, Public Health Act, 1936.

Name of Nursing Home	Date of Registration with Luton Borough Council	DIVISION OF BEDS			
		Maternity	Surgical	Medical	Total
Westdale	1.7.36 formerly with Beds. C.C.	5	—	—	5
The Haven	1.7.36 formerly with Beds. C.C.	4	—	—	4
The Mount	5.6.45	12	—	—	12
The Chase	3.4.46	10	—	—	10
TOTALS		31	—	—	31

During the year 56 women were delivered in the Westdale Nursing Home, 98 in the Haven Nursing Home, 226 in the Mount Nursing Home, and 120 in the Chase Nursing Home.

Mrs. Valerie Bowerman, S.R.N., 53, Heywood Drive, was granted a certificate in respect of the Chase Nursing Home on 3rd April, 1946.

BOROUGH MATERNITY HOSPITAL.

Clinical and Administrative Statistics.

	Borough Maternity Hospital.	*Extension*	*Total.*
No. of patients in hospital—1.1.46 ...	22	15	37
No. of patients admitted during the year	752	755	1,507
No. of patients discharged during the year	747	744	1,491
No. of patients in hospital—31.12.46 ...	23	26	49
No. of patients died during the year ...	4	—	4
Admissions :			
No. of patients admitted for confinement—			
Borough	508	640	1,148
Other	156	29	185
No. of patients admitted for ante-natal or post-natal treatment—			
Borough	60	81	141
Others	28	5	33
	752	755	1,507
No. of patient days* :			
(*a*) Ante-natal or post-natal treatment	496	668	1,164
(*b*) Confinements...	9,691	9,786	19,477
(*c*) Total	10,187	10,454	20,641
Average duration of stay of women delivered in hospital	14.59 days	14.62 days	
Daily average for the year	23	22	45
Maximum number of patients on any one day	29	32	61
Number of patients delivered by :			
(*a*) Midwives	555	591	1,146
(*b*) Doctors	99	78	177
Operations performed :			
Forceps delivery	55	52	107
Caesarean Section	7	—	7
Caesarean Section and sterilisation ...	2	—	2
Hysterotomy and Sterilisation	—	—	—
Ruptured membranes for induction of labour	14	6	20
Manual removal of placenta	6	7	13
Perineal suture	109	98	207
Episiotomy	8	6	14
Other operations	11	10	21
Forceps rate...	8.2%	7.6%	
No. of deliveries	667	678	1,345

*Includes patient-days at Chaul End Nursery Building.

	Borough Maternity Hospital	*Extension*	*Total*
No. of viable children born	634	657	1,291
No. of stillbirths	33	21	54
No. of infantile deaths	18	14	32
Miscarriages	5	4	9
Causes of infantile death :			
Birth injury with shock or asphyxia ...	2	1	3
Congenital heart disease, Spina Bifida, Anencephalus, etc.	2	3	5
Hydrocephalus	—	—	—
Cleft palate : debility	—	—	—
White asphyxia	—	1	1
Enteritis	1	—	1
Icterus Neonatorum	—	—	—
Broncho-pneumonia	—	—	—
Prematurity	13	8	21
Erythroblastosis	—	1	1
Feeding :			
No. of infants wholly breast fed on leaving institution	507	527	1034
No. of infants who at any time received a supplementary or complementary feed	109	118	227

TABLE 20. LEGITIMATE LIVE BIRTHS OCCURRING IN THE COUNCIL'S MATERNITY INSTITUTIONS DURING 1946 (excluding multiple births).

The number of previous pregnancies (irrespective of outcome) being :

Age of Mother at Maternity	Pregnancy Order (including present pregnancy)									Total
	1	2	3	4	5	6	7	8	9+	
Years										
15–20	31	1	—	—	—	—	—	—	—	32
20–25	213	80	15	4	—	1	—	—	—	313
25–30	145	116	53	16	8	5	—	—	1	344
30–35	86	111	56	34	8	6	4	—	—	305
35–40	25	48	27	24	9	5	4	1	5	148
40–45	3	5	4	6	3	3	2	2	3	31
45+	—	—	—	1	—	—	—	—	—	1
All ages	503	361	155	85	28	20	10	3	9	1,174

Multiple Births 22 (In one case one set of twins Stillborn, and in 3 cases one of a twin pair Stillborn). Stillbirths 54. Illegitimate Births 79. Information not available: 4.

Training School : Midwifery—Part II.

No. of pupil midwives who passed the examination of the Central Midwives Board during the year 25

THE CHAUL END MATERNITY UNIT.

The Chaul End Nursery building was opened as a temporary maternity unit on the 7th June, 1945. Women delivered at the Borough Maternity Hospital and Extension were transferred to the unit during the late puerperium, and in addition, one women was admitted there for ante-natal treatment. Patient days spent by women in this unit have been taken into account in the figures relating to the average duration of stay of women delivered in the Maternity Hospital and the Extension (p.24).

	Patient days Chaul End Unit		
	Hospital Patients.	*Extension Patients.*	*Total.*
(*a*) Ante-natal and Post-natal treatment	4	—	4
(*b*) Puerperium	2,354	2,718	5,072
Total	2,358	2,718	5,076

SPITTLESEA ISOLATION HOSPITAL.

TABLE 21.

SPITTLESEA HOSPITAL ADMISSIONS

(According to diagnosis at admission).

	Scarlet Fever	Diphtheria	Cerebro-spinal Fever	Puerperal Pyrexia	Other*	No. of Patient days
January ...	3	6	—	—	10	434
February ...	—	6	—	—	5	321
March ...	2	3	—	1	8	346
April ...	5	6	—	1	5	302
May ...	9	1	—	—	9	294
June ...	8	—	—	—	11	193
July ...	10	—	—	—	7	236
August ...	5	1	—	5	7	228
September	4	3	—	1	4	234
October ...	2	2	—	1	7	267
November	8	—	—	1	5	228
December	6	2	—	—	7	302
Total ...	62	30	—	10	85	3,385

*Other cases total for year include : Measles 7, Whooping Cough 7, Meningitis 13, Pemphigus 3, Poliomyelitis 6.

SPITTLESEA ISOLATION HOSPITAL

Available bed days	20,748	
Actual bed days of patients...	3,385	
Percentage of bed occupation	16.31%	
Maximum number of patients on any one day	16	
Minimum number of patients on any one day	2	
No. of patients in hospital 31.12.45	15	
No. of patients admitted during the year	187	
	———	202
No. of patients discharged well	182	
No. of patients who died	8	
No. of patients remaining in hospital 31.12.1946 ...	12	
	———	202

SICK BAY

Available bed days	3,984	
Actual bed days of patients...	1,614	
Percentage of bed occupation	40.51%	
Maximum number of patients on any one day	10	
Minimum number of patients on any one day	1	
No. of patients in hospital 31.12.1945	10	
No. of patients admitted during the year	54	
	———	64
No. of patients discharged well	59	
No. of patients who died	—	
No. of patients remaining in hospital 31.12.1946 ...	5	
	———	64

NURSERIES.

	Manor Road	*Alder Crescent*	*Stopsley*	*Total*
No. of Children on Register 1.1.46	65	75	63	203
No of Children added to Register ...	89	86	33	208
No. of Children removed from Register	76	80	50	206
No. of Children remaining on Register 31.12.46	78	81	46	205
No. of Children on waiting list 31.12.46	32	19	Nil	51

REPORT

OF THE

Chief Sanitary Inspector

Public Health Department,
Town Hall,
LUTON.

1*st January*, 1947.

The Worshipful the Mayor, Aldermen and
Councillors of the Borough of Luton.

Ladies and Gentlemen,

The inability to secure prompt repair to dwelling-houses, mainly caused by the shortage of materials and labour, the rapid deterioration of many houses because of neglect, and the increase in overcrowding which has accentuated disrepair, have contributed to a big increase in the number of nuisance complaints received, and an increase of over 50% above 1945 of the Statutory Notices served.

Many houses have been patched again and again until not only is it uneconomical, but impossible, to maintain them at a reasonable standard of fitness, and although every effort is being made to retain them during the housing shortage, the time is not far distant when the worst must be weeded out.

The importance of adequate inspection of food has received full consideration. 17,370 animals have been inspected in the slaughterhouses, and over 90 tons of food have been condemned as unfit for food during the year.

The sale of ice-cream during the season has been a matter of some concern, as methods of manufacture, handling and premises left much to be desired. However, appreciable improvements had been made before the season was over, and it is confidently expected that next season the premises and manufacture will be maintained at the higher standard.

During the year all premises where food is prepared or stored have received one or more visits by an Inspector and, although alterations or reconstructions are desirable in many instances, they cannot be proceeded with at the present time. Every effort has been made, however, to maintain cleanliness, and attention has been given to all necessary repairs.

It was found possible towards the latter part of the year to give some time to the observation of Factory Chimneys and to investigate the causes of smoke pollution. Several contacts were made with the Ministry of Fuel and Power for help in allocating more suitable fuel to prevent excess smoke ;

and in some instances an improvement was made. Factory owners have been co-operative, but, for many reasons a great improvement in the abatement of industrial smoke cannot be expected immediately.

The adoption of a scheme which includes the free treatment for the extermination of rats in private dwellings, and complete inspection of selected areas in the town by the rodent operatives, is proving to be successful, because not only have many more infestations been found, but block treatment has, for the first time, become practicable. It is hoped that, very shortly, labour will be available for disinfesting the sewers, and when this is done the major problem of rat extermination should be at an end.

Changes in staff have occurred throughout the year. Two Inspectors have left for other appointments, and three appointments have been made. This has resulted in staff depletion over a long period, as some months elapsed before the vacancies could be filled. For the first time in several years, however, I am pleased to be able to report having a full staff of Sanitary Inspectors.

In conclusion, I would like to thank members of the Staff and other Officers of the Council for the assistance they have given me throughout the year.

I have the honour to be,

Your obedient Servant,

ARTHUR J. NICHOLS,

Chief Sanitary Inspector.

SANITARY CIRCUMSTANCES OF THE AREA.

GENERAL.

Luton, which has an area of 8,736 acres, is situated in a valley between the Chiltern Hills at 200 to 400 feet above sea level in the town, rising to 400 to 600 feet above sea level on the surrounding hills. It is mainly built upon the upper chalk, with loam and clay deposits.

Meteorology.—The Luton Meteorological Station, which is under the control of the Borough Engineer, is situated in Wardown Park, New Bedford Road, from which the following observations were taken :—

Sunshine.—1,414.3 hours of sunshine were recorded during the year. The sunniest day being the 7th July, 1946, when 13.8 hours were recorded.

Rainfall.—The total rainfall recorded during the year was 28.07 inches, the wettest day being the 9th August, 1946, when 0.95 inch of rain was recorded.

Temperatures.—The maximum temperature during the year was 82° F., recorded on the 12th July, 1946, and the minimum temperature was 11° F., on the 21st December, 1946, the mean temperature being 47.83° F.

Wind.—The prevailing wind during year was south-west.

WATER SUPPLY.

Luton has an abundant supply of excellent water which is distributed throughout the Borough by the Luton Water Company, and is derived from deep wells in the chalk situated in Crescent Road and Runley Wood. Chlorination of the supply is carried out, the average amount of chlorine pumped into the supply being .21 parts per million.

From information received from the Luton Water Company, the total amount of water supplied during the year ended 31st December, 1946, was 1,600,000,000 gallons. Assuming a population of 100,000 the total number of gallons used per head per day was approximately 45, an average of 20 gallons per head per day for industrial purposes, and 25 gallons per head per day for domestic use.

Extensions of mains have been carried out in the following districts and roads during the year 1946 :—

Leagrave Housing Estate
Hart Lane Housing Estate
Holly Bush Road
Fairford Avenue
Stapleford Road
Ashcroft Road Estate
Westmorland Avenue
Sowerby Avenue
Eaton Valley Road
Farringdon Road

In the new portion of the Borough, which was incorporated in April, 1933, there are still thirty houses which obtain their supply from driven tube wells.

Samples of water are taken regularly from the town mains at various points within the Borough and from other sources of supply for chemical and bacteriological examination.

The following is a summary of the samples of water taken during the year from all sources. Details of samples which were adversely reported upon are given below.

Number of samples of water examined by the Public Analyst ...		3
Number of samples of water examined by the Local Authority ...		205
Total		208

Number of samples of water obtained from :—			
Crescent Road Pumping Station	102		
Runley Wood Pumping Station	101		
Domestic Supplies (Town Mains)	2		
Shallow and Deep Wells, etc.	3		
Other sources	—		
		208	
Number of samples found upon examination to be satisfactory		208	
Number of samples found upon examination to be unsatisfactory—			
Presence of Bacillus Coli	—		
		208	

SEWERAGE AND SEWAGE DISPOSAL

The drainage of the Borough is on the separate system, except in the old part of the Borough which is semi-separate.

The soil water sewage is dealt with at the New Mill End Sewage Purification Works by sedimentation, burning and filtration, the effluent being discharged into the River Lea at New Mill End.

CLOSET ACCOMMODATION.

The following table shows the number of pail closets, earth closets and cesspools in the Borough at the end of December, 1946 :—

Pail closets	34
Earth closets	0
Cesspools	161

During the year no cesspools were abolished.

All pail closets are emptied either once or twice weekly between the hours of 10 p.m. and 6 a.m.

Cesspools are emptied by means of mechanical plant as and when required. 123 cesspools were emptied during the twelve months ended 31st December, 1946.

PUBLIC CLEANSING—REFUSE DISPOSAL

The following information is supplied by the Director of Public Cleansing.

The system of refuse disposal is wholly controlled tipping. The weight of house and trade refuse disposed of during the year was 23,005 tons, 1 cwt., 3 qrs.

The frequency of refuse collection was maintained at approximately once in two weeks, in spite of continued shortages of labour.

SANITARY INSPECTION OF THE AREA.

NUMBER AND NATURE OF INSPECTIONS MADE.

Complaints reported to Public Health Department	1,613
Primary Inspection :—	
Where nuisances were found	1,620
Where complaint was received and no nuisance found	115
Under Housing Acts	86
Where Infectious Disease has occurred	301
Bakehouses	85
Caravans, Tents, etc.	16
Common Lodging Houses	2
Cowsheds	11
Dairies and Milkshops	261
Factories	176
Fish Frying Premises	20
Fish Curing Premises	—
Food Preparing Premises	199
Food Preparing Premises (Ice Cream)	74
Food Storage Premises	220
Markets and Shops	768
Marine Stores	1
Offensive Trades	6
Offices	11
Outworkers' Premises	32
Overcrowding	70
Restaurant Kitchens	111
Slaughterhouses (for meat inspection)	1,690
Schools	18
Stables and Piggeries	12
Theatres and Amusement Halls	9
Urinals—Public and Private	20
Work Places (other than those in list above)	10

OTHER VISITS OR INSPECTIONS.

Drainage. Number of drains tested or exposed	52
Interviews	929
Investigations of Infestations of Insect pests (excluding bugs) ...	65
Investigations of Bug Infestations	150
Smoke Observations	169
Visits to obtain Water Samples for Analysis	208
,, Rats and Mice Destruction	422
,, under The Food and Drugs Act, for Samples, etc. ...	500
,, to property under notice or work in progress	3,419
Miscellaneous visits	1,327
	14,798

ABATEMENT OF NUISANCES.

Drainage reconstructed	29
,, repaired, trapped, etc.	37
,, unstopped	179
Chambers constructed	8
Repairs to chambers or new covers	19
Cesspools emptied because of overflow	2
Soil or vent pipes—new fixed	3
,, ,, repaired	9
Water closets—repaired or supplied with water	255
,, ,, new pans or pedestals fixed	54
,, ,, additional constructed	4
,, ,, abolished	—
Waste Pipes—repaired or trapped	64
,, ,, or R.W.P.'s disconnected from drains	4
,, ,, R.W.P.'s and eaves gutters repaired...	130
Sinks provided or replaced	11
Accumulations of refuse removed	21
Animals, fowls, etc.	5
Brickwork or pointings repaired	90
Coppers repaired or renewed	29
Dampness remedied	60
Damp Proof courses inserted	5
Dustbins supplied	209
Fireplaces, stoves and flues repaired	96
Flooring and other woodwork repaired or renewed	198
Floors—concrete or quarried repaired or renewed	16
Food-cupboards provided or ventilated	2
Gas fittings or services repaired	22
Gullies in street unstopped	3
Overcrowding abated	15
Plaster repaired	263
Rat infestations abated...	393
Rent Books made to comply with Regulations of Housing Act ...	230
Roofs made watertight	204

Stagnant water removed	1
Walls and ceilings cleansed	34
Water supplies reinstated or made sufficient	12
Windows—Cords, fasteners and glass repaired or renewed ...	154
Verminous rooms fumigated	359
Ventilation improved	2
Ventilation—sub-floor provided	2
Yards and passages paved	18
Miscellaneous	79
Total	3,330

STATUTORY NOTICES.

NUMBER OF LEGAL NOTICES ISSUED FOR ABATEMENT OF NUISANCES.

	Served	*Complied with*
Number of Outstanding Notices, 31st Dec., 1945	16	16
Public Health Act, 1936. Section 39	18	8
Public Health Act, 1936. Section 45	17	7
Public Health Act, 1936. Section 93	55	28
Luton Corporation Act, 1911. Section 36 ...	25	22
	131	81

INFECTIOUS DISEASES.

Premises inspected where notifiable diseases have occurred ...	301
Cases removed to Isolation Hospital	100
Rooms disinfected after infectious, contagious or other disease, etc.	326
Premises where repairs or redecorations have been carried out after infectious diseases	3
Rooms where walls and ceilings were rubbed down after infectious disease	48
Visits paid to ascertain if notices to repair or redecorate have been complied with	11
Rooms disinfected by occupiers	137
Premises visited tracing infectious diseases	121
Articles disinfected by steam at request of owners	1,101
Articles destroyed by burning at request of owners	112
Total visits paid to infected premises	688

DISINFECTANT.

During the year 40 gallons of disinfecting fluid were supplied to the public, free of charge, for use in premises where cases of infectious disease, etc., had occurred.

LIBRARY BOOKS.

During the year 470 library books were withdrawn from circulation and were disinfected before they were returned.

PUBLIC SWIMMING BATHS.

There are two Public Swimming Baths in the Borough, both owned by the Corporation.

The Public Baths are situate in Waller Street, Luton, and consist of a covered Swimming Bath, 46 Slipper Baths and 1 Vapour Bath, whilst the Open Air Swimming Pool, situate off New Bedford Road, Luton, caters for Swimming and Bathing only.

During the season of 1946 the following number of bathers were dealt with :—

	Waller Street Baths	*Open Air Swimming Pool*
Civilians	125,673	55,547
Members of H.M. Forces	12,109	Nil
Total	137,782	55,547

Chloroscope examinations of the water are carried out by the Attendants approximately three times per day, and in addition, samples of water are sent to the Public Analyst for examination every two months.

THEATRES.

Inspection of Sanitary Accommodation in the Cinemas and the Theatre has been made during the year.

Only minor Sanitary defects were found and attended to.

ERADICATION OF BED BUGS.

During the year ended 31st December, 1946, 88 complaints of verminous premises were received, and in all instances where bugs were found, disinfestation was carried out. Prior to disinfestation, notices were served upon the owners of the premises to remove all paper hangings, skirtings, architraves, mouldings, etc., and the premises were re-inspected before these articles were reinstated.

TABLE 22.

The following table shows the number of premises and rooms dealt with during 1946 :—

	Number of Premises		Number of Rooms	
	Found to be infested	Disinfested	Found to be infested	Disinfested
Number of Council Houses	10	10	26	26
Number of other Houses	126	126	294	294
Number of cases where disinfestation has been carried out prior to removal from Clearance Areas, etc. into new Council Houses	—	—	—	—
Number of cases where disinfestation has been carried out by Corporation Disinfecting Officer	136	136	320	320
Number of cases where disinfestation has been carried out by Occupants or Contractors	—	—	—	—
Number of complaints of infestation received (88)	74	74	190	190
Number of cases found by Sanitary Inspectors	62	62	130	130

RATS AND MICE DESTRUCTION.

From the 1st of July, 1946, the scheme for the free treatment of dwelling houses has been in operation. Pre-determined areas in the town have been surveyed in the form of house to house visits and as a result many infestations have been found.

The Corporation Controlled Refuse Tip has again been thoroughly treated, resulting in a marked diminution in the infestation.

Infestations reported at business premises were considerably less than in the previous year.

TABLE 23.

The following table shows the amount of work carried out during 1946 :—

		Complaints received	Infestations dealt with	Treatment completed	Premises requiring re-treatment	Bodies found	Number destroyed according to Ministry formula
Private Dwellings	Rats	212	326	325	1	829	10,445
	Mice	6	6	6	—	49	49
Business Premises	Rats	67	67	56	11	470	16,606
	Mice	23	23	22	1	488	488
Totals	Rats	279	393	381	12	1,299	27,051
	Mice	29	29	28	1	537	537

THE FACTORIES ACT, 1937.

Since the Factories Act became operative, inspection of factories within the Borough has been maintained and unsatisfactory conditions have been recorded and appropriate action taken by the Local Authority.

As a result of the inspection of Basement Bakehouses, the Local Authority resolved that they were not satisfied that the Bakehouses were suitable for use as such, and gave the owners a period of eighteen months in which to cease using these premises.

Owing to present conditions, the period of eighteen months has been extended. The position will again be reviewed in January, 1947.

INSPECTION OF FACTORIES

FACTORIES, FACTORIES NO MECHANICAL POWER, AND WORKPLACES.

Premises inspected	2,231
Premises inspected and found satisfactory	2,137
Premises inspected and found unsatisfactory	94
Factories where defects were found and referred by H.M. Inspector	24
Reports on action taken sent to H.M. Inspector	21
Number of defects remedied as a result of H.M. Inspector's notifications	41

LIST OF DEFECTS FOUND IN FACTORIES, FACTORIES (NO MECHANICAL POWER), AND WORKPLACES.

Abstract not posted	2
Cleanliness, want of	38
Dilapidations, General	10
Dustbins required	12
Drains choked or defective	5
Drainage inadequate	1
Floors defective	4
Offensive accumulations	4
Rat or Mice infestation	90
Smoke Nuisances	3
Ventilation, want of	4
Water Closet, not separate for sexes	1
,, ,, no ventilated Lobby	5
,, ,, not lighted	4
,, ,, dirty condition...	7
,, ,, needing repair	16
,, ,, not screened	5
,, ,, without indication	8
,, ,, insufficient	11
Washing facilities absent	4
	234

SMOKE ABATEMENT.

169 smoke observations were made during the year, and although investigations were made and verbal advice given on many occasions it was necessary in three instances to serve written warnings.

REGISTERED FACTORIES AND FACTORIES (NO MECHANICAL POWER).

FACTORIES ACT, 1937.

The following is a classified list of the Factories and Factories (No Mechanical Power) on the Register at the 31st December, 1946.

FACTORIES.

Hat Manufacturers	235
Upholsterers	4
Motor Vehicle Engineers, Repairs and Cycle Repairs	36
Boot Repairers	27
Corn Merchants	2
Joiners, Woodworkers and Carpenters	29
Builders	3
General Engineers	36
Undertakers	2
Hat Blockers and Blockmakers	17
Bleachers, Dyers and Felt Body Makers	14
Breeze Block Manufacturers	2
Cardboard Box Makers	15
Chocolate, Cocoa and Sweet Manufacturers	2
Printers and Letterpress Printers	21
Hat Lining Manufacturers	11
Sheet Metal Workers	6
Electrical Engineers	11
Cellulose Spraying	2
Jigs and Tools Makers	2
Sausage Makers, Pie Makers, etc.	11
Electro-platers	1
Iron Founders	9
Stone Masons	3
Tailors and Clothiers	25
Machine Makers	1
Hat Materials Merchants	1
Saw Mills	2
Laundries	6
Sewing Machine Engineers	2
Pattern Makers	3
Mineral Water Manufacturers and Brewers	6
Photographic Printers and Developers	3
Feather Dyeing and Mounting	5
Chemical Makers	2
Blacksmiths	5
Garment Makers and Menders and Corset Makers	11
Dairies	4
Knitted Hood Makers and Proofers	3
Glass Workers	5
Millinery	1
Plastic Ornaments	1

Fireplace Manufacturers	1
Electric Appliances	1
Cigarette Manufacturers	1
Ice-Cream Manufacturers	1
Brass and Aluminium Founders	4
Beer Bottling, Coffee Roasting and Grinding	1
Coach and Motor Body Builders	3
Miscellaneous	44
	643

FACTORIES (NO MECHANICAL POWER).

Joiners	4
Weighing Machine Repairers and Scale Makers	2
Upholsterers	3
Tailors	5
Blacksmiths and Wheelwrights	6
Coach Builders and Repairers, Motor Vehicle and Cycle Repairers	3
Sheet Metal Workers	2
Watch, Clock, Jewellery and Typewriting Repairs	1
Hat and Millinery Manufacturers	10
Dress and Coat Makers and Alterations	4
Builders' Yards and Brickmakers	3
Boot Repairers	1
General Engineers	2
Sweet Manufacturers	2
French Polishers	1
Feather Work	1
Miscellaneous	9
Typewriter Repairs	1
Radio Repairs	1
Electrical Engineers	1
Basket Makers	1
	63

TABLE 24. OUTWORKERS RETURNS.

Nature of Work	OUTWORKERS LISTS (Section 110, Factories Act, 1937. Section 107, Factory and Workshop Act, 1901.) Lists received from Employers and other Authorities: Sending once in the year: Outworkers: Lists	Sending once in the year: Outworkers: Contractors	Sending once in the year: Outworkers: Workmen	Sending twice in the year: Outworkers: Lists	Sending twice in the year: Outworkers: Contractors	Sending twice in the year: Outworkers: Workmen	Notices served on occupiers as to keeping or sending lists	Prosecutions: Failing to keep and permit inspection of lists	Prosecutions: Failing to send lists.	Outwork in unwholesome premises, Sec. 111: Instances	Notices served	Prosecutions	Outwork in infected premises, Sec. 153. P.H.A. 1936: Instances	Orders made Sec. 153. P.H.A. 1936	Prosecutions Sec. 153. P.H.A. 1936	Lists forwarded to other Authorities: Local Authorities to whom lists of outworkers have been forwarded	Number of lists	Workmen	Contractors	Lists received from other Authorities: Authorities from whom lists have been received	Number of lists	Workmen	Contractors
Making, &c.(1)																Where cases have arisen work has been withheld by verbal arrangement	Luton R.D.C. ...	3	5	–				
Wearing Apparel (2)	14	2	85	6	2	35	–	–	–	–	–	–					Ampthill R.D.C.	3	3	–	Chelsea M.B. ...	1	1	1
																	Willesden B.C....	1	1	–	Stepney M.B. ...	2	–	2
																	Harpenden U.D.C.	2	2	–	City of Westminster	1	2	1
																	Dunstable U.D.C.	3	6	–	Ware U.D.C. ...	1	1	–
Stationers and Paper Merchants	1	–	1	–	–	–	–	–	–	–	–	–				No separate Records kept	Hemel Hempsted R.D.C.	1	1	–	Corporation of London	1	1	–
Totals	15	2	86	6	2	35	–	–	–	–	–	–						13	18	—		6	5	4

The homes of all outworkers are visited by the Sanitary Inspectors who deal with any nuisance or other irregularity.

HOUSING.

I.—Inspection of Dwelling-houses during the year :—

(1)	(*a*) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts) ...	2,002
	(*b*) Number of inspections made for the purpose	5,281
(2)	(*a*) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Acts...	1
	(*b*) Number of inspections made for the purpose. Visits to properties already recorded in (2) (*a*)	81
(3)	Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	1
(4)	Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	1,316

II.—Remedy of defects during the year without service of formal Notices :—

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	1,122

III.—Action under Statutory Powers during the year :—

A.—Proceedings under Sections 9, 10 and 16 of the Housing Act, 1936 :—

(1)	Number of dwelling-houses in respect of which notices were served requiring repairs	0
(2)	Number of dwelling-houses which were rendered fit after service of formal notices :—	
	(*a*) By Owners	0
	(*b*) By Local Authority in default of owners ...	0

B.—Proceedings under Public Health Acts :—

(1)	Number of dwelling-houses in respect of which formal notices were served requiring defects to be remedied...	115
(2)	Number of dwelling-houses in which defects were remedied after service of formal notices :—	
	(*a*) By Owners	81
	(*b*) By Local Authority in default of owners ...	0

C.—Proceedings under Sections 11 and 13 of the Housing Act, 1936 :—

(1) Number of dwelling-houses in respect of which Demolition Orders were made	*1
(2) Number of dwelling-houses demolished in pursuance of Demolition Orders	4

* Undertaking given not to let for human habitation.

D.—Proceedings under Section 12 of the Housing Act, 1936 :—

(1) Number of separate tenements or underground rooms in respect of which Closing Orders were made	0
(2) Number of separate tenements or underground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit	0

Housing Act, 1936 :—

(*a*) (i) Number of dwellings overcrowded at end of year ...	83
(ii) Number of families dwelling therein	137
(iii) Number of persons dwelling therein	779
(*b*) Number of new cases of overcrowding reported during the year	21
(*c*) (i) Number of cases of overcrowding relieved during the year. (25 families in 15 houses)	15
(ii) Number of persons concerned in such cases	133
(*d*) Cases in which dwelling-houses have again become overcrowded after the Local Authority have taken steps for the abatement of overcrowding	1
(*e*) (i) Number of Council houses found to be overcrowded at end of year	10
(ii) Number of families dwelling therein	19
(iii) Number of persons dwelling therein	84
(*f*) Number of cases of overcrowding in Council houses relieved during the year	3

INSPECTION AND SUPERVISION OF FOOD.

MILK SUPPLY : MILK AND DAIRIES ACTS AND ORDERS, ETC.

	On Register Dec. 31st, 1945	*On Register Dec. 31st, 1946*
Registered :—		
Cowkeepers	11	11
Wholesalers	9	9
Registered Purveyors for Sale of :—		
Tuberculin Tested Milk	5	5
Tuberculin Tested Milk (Certified) ...	1	1
Pasteurised Milk	4	5
Ungraded Loose Milk	67	69
Prepacked Milk only	157	159

MILK (SPECIAL DESIGNATIONS) ORDER

The following licences were granted during 1946 :—

Tuberculin Tested Milk (Certified)—			
Supplementary	1		
	—	1	
Tuberculin Tested Milk—			
Establishment at which the Milk is bottled ...	1		
Establishment where Milk is sold in bottles as supplied by wholesaler	4		
	—	5	
Pasteurised (Holder)	3		
Pasteurised (H.T.S.T.)	1		
	—	4	
		—	10
Number of Milk Vendors resident in Borough ...			208

BACTERIOLOGICAL EXAMINATION OF MILK.

During the year 143 samples of milk were submitted for bacteriological examination and Table 25 shows the results of these examinations.

TABLE 25. BACTERIOLOGICAL EXAMINATION OF MILK.

	Samples reported to contain :—												
	Total number of samples submitted	B. Coli in tubes			%	Strep-tococci	%	Pus cells	%	Dirt	%	Acid fast Organ-isms	%
		1	2	3									
Ordinary Milk	25	5	5	5	60.00	—	—	20	80.00	—	—	—	—
Pasteurised (Holder) ...	80	1	1	—	2.5	—	—	66	82.5	—	—	—	—
Pasteurised (H.T., S.T.)	21	1	1	—	9.52	—	—	16	76.19	—	—	—	—
Tuberculin Tested ...	14	2	2	2	43.00	—	—	11	78.00	—	—	—	—
Tuberculin Tested (Certified) ...	3	—	—	—	—	—	—	3	100.00	—	—	—	—
Sterilised	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	143	9	9	7	17.48	—	—	116	81.12	—	—	—	—

TABLE 26.

SUMMARY OF CHEMICAL ANALYSES OF MILK SAMPLES.

Period	No. of Samples Examined	AVERAGES Fat %	Solids not Fat %
January	26	3.59	9.05
February	11	3.70	8.92
March	18	3.44	8.79
Quarter ended 31.3.46 ...	55	3.57	8.94
April	19	3.54	8.88
May	29	3.35	8.59
June	26	3.84	8.93
Quarter ended 30.6.46 ...	74	3.58	8.78
July	26	3.39	8.77
August	17	3.75	8.72
September	15	3.42	8.63
Quarter ended 30.9.46 ...	58	3.50	8.72
October	35	3.59	8.76
November	29	3.57	9.26
December	23	4.00	8.78
Quarter ended 31.12.46 ...	87	3.70	8.92
Year ended 31.12.46 ...	274	3.62	8.91

A number of unsatisfactory samples was taken from large bulk supplies and it was impossible to trace the Milk to its source of production, but in 13 cases, the matter was taken up with the County Councils, Producers and Retailers concerned.

EXAMINATION OF MILK

SECTION 25, FOOD AND DRUGS ACT, 1938

Twenty samples of milk were taken and tested by Guinea Pig inoculation, and all samples were found to be free from Tubercle Bacilli.

In four samples the presence of Brucella Abortus was disclosed, and in three instances the matter was referred to the Veterinary Inspector of the Ministry of Agriculture and Fisheries, who inspected the herds but was unable to trace the infected animals.

The other sample was from a bulk supply and it was impossible to trace the milk to its source of production.

TABLE 27.

BACTERIOLOGICAL EXAMINATION of WASHED MILK BOTTLES

1-pint bottles rinsed with 20 c.c. Saline

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Bottle Count	60	400	440	3,200	600	700	20	28,000	6,000	4,000	10,400	8,400	8,000	7,200
Coli in 3 tubes	—	—	—	—	—	1	—	—	—	—	—	—	—	—

REGISTRATION OF PREMISES USED FOR THE MANUFACTURE, STORAGE OR SALE OF FOOD.

	Premises on Register, 1945	Added on Register, 1946	Totals
Sale and Storage of Ice-cream ...	60	23	83
Manufacture of Ice-cream... ...	18	4	22
Manufacture of Preserved Foods	66	1	67
Fish Frying and Curing	28	—	28
Butter, Margarine, Wholesale dealers or Factories	17	—	17

ICE-CREAM.

Fourteen samples of ice cream and materials used in connection therewith have been examined in the Council's laboratory.

Five samples had a count of over 100,000 bacteria per c.c. and B. Coli in $\frac{1}{100}$ c.c. was present.

Five other samples contained B. Coli in $\frac{1}{100}$ c.c.

INSPECTION OF MEAT AND OTHER FOODS.

The amount of unsound food condemned and destroyed during the year comprised :—

No. of Parcels	*Article*	*Weight in lbs.*
3,669	Beef	169,623
206	Pork	6,472
196	Mutton	7,680
	Bacon and Ham	36
	Vegetables—Fresh and Canned and Soups	2,644
	Fish—Fresh and Canned	6,790
	Fish Cakes	134
	Sausage and Sausage Meat	26
	Butter and Cheese	2
	Canned Milk	962
	Canned and Cooked Meat	3,503
	Flour and Bread	3,776
	Preserves	86
570	Tea	6
	Cocoa	19
	Coffee	1
	Cake and Pudding Mixture	64
	Fruit—Fresh and Canned	419
	Cereals	133
	Sweets	87
	Biscuits	1
	Rhubarb	590
	Egg Powder	35
	Sugar	10
	Suet	1
	Cornish Pasties	8
	Pickles and Sauces	4
	Paste	9
	Macaroni	60
4,641	90 tons 14 cwts. 0 qrs. 14 lbs.	203,182

The above statement includes the weight of the entire carcases and organs of 26 cattle, excluding cows, 75 cows, 21 calves, 12 sheep and lambs and 19 pigs.

In addition, the following articles which were not weighed were condemned :—

No. of Parcels	*Article*	*Number*
	Fish Cakes	1,809
	Crumpets	2,180
	Swiss Rolls, Cakes and Buns ...	693
40	Milk	243 pints
	Cake and Pudding Mixture ...	36 packets
	Sundries	97

TABLE 28

MEAT INSPECTION IN SLAUGHTERHOUSES.

	Cattle excluding Cows	Cows	Calves	Sheep and Lambs	Pigs	Total
Number killed	3,355	2,064	2,963	8,191	797	17,370
Number Inspected ...	3,355	2,064	2,963	8,191	797	17,370
Percentage of number killed which were inspected	100%	100%	100%	100%	100%	100%
All diseases except Tuberculosis : Whole carcases condemned	6	12	11	12	12	53
Carcases of which some part or organ was condemned	1,058	771	26	692	76	2,623
Percentage of the number inspected affected with disease other than tuberculosis	31.71%	37.94%	1.21%	8.59%	11.04%	15.41%
Tuberculosis only : Whole carcases condemned	20	63	10	—	7	100
Carcases of which some part or organ was condemned	642	829	2	1	84	1,558
Percentage of the number inspected affected with Tuberculosis	19.73%	43.21%	0.40%	0.01%	11.42%	9.55%

TUBERCULOSIS IN CALVES.

During the year Veterinary Inspectors of the Ministry of Agriculture and Fisheries were notified of nine calves examined in the slaughterhouses and found to be affected with Tuberculosis.

Reports from the Veterinary Inspectors concerned show that five dams were traced and dealt with.

SLAUGHTER OF ANIMALS ACT, 1933

Number of Slaughtermen on Register at 31st December, 1945 ...	32
Applications for Licenses considered during 1946	35
Number of Slaughtermen on Register at 31st December, 1946 ...	35

SALE OF FOOD AND DRUGS ACTS.

During the year 296 samples were taken, 147 being formal and 149 informal samples.

Formal	*Informal*	*Nature of Sample*
—	4	Butter
—	2	Cheese
—	10	Cooked Meats
—	12	Confectionery, sweets, etc.
—	2	Fish—canned and fish and meat paste
—	12	Fruit—fresh and preserved
—	42	Groceries—miscellaneous
—	10	Jam, honey, marmalade, etc.
—	3	Lard
—	3	Margarine
—	3	Milk and Milk Foods (canned)
140	—	Milk
—	22	Patent medicines and chemical substances
—	1	Suet
—	9	Sausages and sausage meat
—	12	Temperance drinks & non-alcoholic wines
7	2	Wines, spirits and beers
147	149	
296		

TABLE 29.

Of the samples analysed 20 were reported to be not genuine, details of which, and the action taken in regard thereto, are as follows :—

Sample No.	Formal	Article	Adulteration or other irregularity	Action taken
7283	1	Milk	Fat deficient 2.0% ...	In all these cases the matter was investigated and the milk found to be as given by the cow, the deficiency being due to the methods of handling. The producer was advised as to proper methods of handling.
7284	1	,,	Fat deficient 19.0% ...	
7383	1	,,	Fat deficient 12.0% ...	
7387	1	,,	Fat deficient 11.0% ...	
7358	1	,,	Extraneous water 2.9%	Matter investigated. Defective cooler discovered. Producer warned and advice given.
7296	Informal	Mustard	Allyl isothiocyanate deficient 62.8%	Informal sample. Formal sample not obtainable.
7323	1	Milk	Fat deficient 3.6% ...	Matter investigated. Average result of 24-hour yield above average. No further action taken.
7441	1	,,	Fat deficient 3.0% ...	
7324	1	,,	Extraneous water 4.8%	Vendor prosecuted under Sale of Food and Drugs Acts. Case heard on 17th July, 1946, and dismissed on the grounds that the wrong person had been summoned. Impracticable to take further action.
7325	1	,,	Extraneous water 8.2% Fat deficient 5.8% ...	
7326	1	,,	Extraneous water 8.4%	
7327	1	,,	Extraneous water 5.7%	
7329	1	,,	Extraneous water 5.5% Fat deficient 4.0%	
7330	1	,,	Extraneous water 5.6% Fat deficient 3.8%	
7475	1	,,	Fat deficient 18.0% ...	Matter investigated. Milk found to be as given by cow. Advice given on method of handling, etc.
7509	1	Vinegar	Acetic Acid 5.40% Total solid matter 0.45% Phosphates nil	Improperly labelled. Vendor warned.
7527	1	Milk	Fat deficient 8.0% ...	In these cases the matter was investigated and the milk found to be as given by the cow. Advice given.
7555	1	,,	Fat deficient 4.0% ...	
7537	1	,,	Extraneous water 8.3%	Milk in frozen state when sampled, and therefore considered not to be a fair sample.
7538	1	,,	Extraneous water 15.5%	

APPENDIX I.

POPULATION, BIRTHS, INFANTILE DEATHS AND STILLBIRTHS, 1934-45

Year	Population mid-year	Registered live births	Live birth rate 1,000 population	No. of registered infantile deaths 0-4 weeks	No. of registered infantile deaths 4-52 weeks	No. of registered infantile deaths 0-1 year	Infantile mortality rate per 1,000 live births	Neo-natal mortality rate per 1,000 live births	Registered stillbirths	Stillbirth rate per 1,000 total registered births
1	2	3	4	5	6	7	8	9	10	11
1934	76,060	1,129	14.8	31	22	53	47	27.4	53	48
1935	80,020	1,282	16.02	27	26	53	41	21.0	57	44
1936	85,600	1,406	16.42	28	21	49	34	19.0	65	46
1934-36		**3,817**	**15.7**	**86**	**69**	**155**	**40**	**22**	**175**	**46**
1937	89,360	1,530	17.12	33	24	57	37	21.5	61	38
1938	90,840	1,567	17.25	44	26	70	45	28.0	49	32
1939	94,110	1,528	16.48	34	23	57	37	22.2	61	38
1937-39		**4,625**	**16.9**	**111**	**73**	**184**	**40**	**24**	**171**	**37**
1940	99,440	1,608	15.51	40	42	82	50.99	24.8	36	21
1941	103,990	1,495	13.84	38	36	74	49.99	25.4	47	31
1942	101,600	1,830	17.91	42	39	81	44.50	22.9	69	36
1940-42		**4,933**	**16.1**	**120**	**117**	**237**	**48**	**24**	**152**	**30**
1943	98,950	1,902	19.22	41	39	80	42.08	21.5	60	31
1944	100,650	2,282	22.7	40	43	83	33.0	17.5	58	23
1945	99,750	1,897	18.9	34	28	62	32.0	17.9	62	28
1943-45		**6,081**	**20.3**	**115**	**110**	**225**	**37**	**19**	**180**	**29**
1946*	105,230	2,165	20.6	51	17	68	31	23	71	32

* Provisional.

APPENDIX II.

REPRODUCTIVE WASTAGE AND INFANTILE MORTALITY

A Statistical Note by

THE MEDICAL OFFICER OF HEALTH
and
RICHARD M. TITMUSS (Statistical Consultant)

For a period of two years the Public Health and Social Statistics of Luton have been collected and collated in an ordered fashion and with definite ends in view.

Some of this work was undertaken for particular purposes, such as the surveys presented in "Report on Luton," "Childlessness and the Small Family,"* and "Families in Trouble"; the rest fall into place as part of the general routine of the Department. A substantial proportion of the latter relates to various aspects of stillbirths and deaths in infancy, and a study of this material yields a number of interesting points.

The present purpose is to place on record some of the more important of these results and to examine them against the background of what is already known. This note is, in effect, an example of practical statistical research undertaken in the Health Department, and it is also an illustration of how departmental records can be used for elucidating new facts and relationships.

Sir John Anderson, speaking at the Annual Conference of the Institute of Municipal Treasurers and Accountants in June, 1945, made the following statement :—

"I should like to throw out the suggestion that it is worth examining whether a good many Local Government statistics generally, quite apart from their relation to full employment, could not be made to give a more speedy and up-to-date picture of the way things are going than they do now."

In the field of health, the Luton Department is endeavouring to do what Sir John Anderson suggested should be done—to provide a picture of the way things are going.

In what follows, the connection between disclosed facts and immediate practical policy is not always apparent, and final conclusions are not always possible. So it is with all research work in any field. The tables should be regarded as small contributions to existing knowledge, as pieces in a jigsaw puzzle which is far from complete. They are rather an indication of the direction we are following than a description of goals already reached. It is in that light that they should be studied, and for that reason that they should be regarded as interim statements, pending their fuller interpretation as new facts accumulate.

* A summary was published as a paper in the *Lancet*, November 9th, 1946, and Appendix III to this report contains certain tables for record purposes with annotations of general interest.

REPRODUCTIVE WASTAGE AND INFANTILE MORTALITY

A great deal has been written about infant health during the recent World War, and attention has rightly been drawn to the unexpected diminution in the national loss from stillbirths and infant deaths—for a decline was not foretold in 1939. The extent of recent changes in the stillbirth rate and the infantile mortality rate for Luton is shown in Appendix I, and in Table I changes in these indices for Luton and England and Wales are compared.*

TABLE I

STILLBIRTHS AND INFANT MORTALITY, ENGLAND AND WALES AND LUTON, 1934-45.

Col. 1	STILLBIRTHS (Number of stillbirths per 1,000 total births—live and still)				INFANT MORTALITY (Number of deaths under one year per 1,000 live births)			
	England & Wales		Luton		England & Wales		Luton	
	Rate 2	% of 1934-6 3	Rate 4	% of 1934-6 5	Rate 6	% of 1934-6 7	Rate 8	% of 1934-6 9
1934-6	40	100	44	100	58	100	41	100
1937	39	98			58	100		
1938	38	95	36	82	53	91	40	98
1939	38	95			50	86		
1940	37	93			56	97		
1941	34	85	30	68	59	101	48	117
1942	33	83			51	88		
1943	30	75			49	84		
1944	28	70	29	66	46	79	37	90
1945	28	70			46	79		

Between 1928-36 the stillbirth rate for England and Wales remained stationary at a level around 40 per thousand births, and then began to fall a little in the years immediately before the war. In Luton the pre-war fall was clearly marked. Indeed, while the largest fall for England and Wales came at the end of the war—between 1942 and 1945—in Luton it showed itself before the war began. By 1945 the national reduction over the 1934-6 average amounted to 30 per cent, and in Luton 34 per cent—

* Up to the year 1940 inclusive the annual number of births are those *registered* during the period. From 1st January, 1941, the figures relate to births which *occurred* during the year. The difference in the rates which result is important in some respects but may be disregarded in this paper. In the calculation of the 1944-5 infant mortality rates for England and Wales an allowance has been made by the Registrar-General for the fact that the children dying at ages under one in any one year are not all drawn from the children born during that year, so that the I.M.R. (infant mortality rate) as usually calculated does not precisely state the chances of dying between birth and the first birthday. A correction is applied to obtain a more correct estimate of the number "exposed to risk," and the rates are called "rates per 1,000 related births." To this extent, therefore, the Luton and national rates are not strictly comparable.

representing a quite remarkable change when seen against a background of six years of war and a period seemingly impervious to improvement lasting from 1928 to 1936.

It has been claimed in many places that the explanation of the war-time decline of the stillbirth rate and the infantile mortality rate is, in a phrase, better nutrition and improved maternal care. Both war-time changes have been attributed to the same self-congratulatory causes. But, is this so? Is the answer as simple and gratifying as is commonly supposed?

There is no doubt that some of the social and economic consequences of the war—full employment, a general equalisation of wage levels, a cutting-off in the grosser inequalities of life (except housing) and a systematic sharing out of food according to need—all these things have improved the health of a section of the people who before the war went short of the necessities of healthy life. There is no doubt whatever that one consequence of the war has been to ensure more food of the right kind for pregnant women and children in the lower income groups. But we have to ask if improved nutrition in a section of the community can explain the war-time changes in both the stillbirth rate and the infant mortality rate, or if it explains one and not the other. These questions need answering.

Even at first sight it does not seem justifiable to couple the trends of infantile mortality and stillbirths as reflections of the same causes, for they differ significantly. While the latter rate fell steadily, the former rose in 1940 and again in 1941. Moreover, the percentage decline by 1945 was less for infant mortality. In Luton, where the initial rate was considerably below that for the country as a whole, the gain over the 10-year period only amounted to 10 per cent.

From a study of Table I four conclusions emerge: (1) the war-time trends of the stillbirth and infant mortality rates differ, (2) the largest decline has been registered by the stillbirth rate, (3) this decline set in before the war began, (4) the decline for Luton preceded that for the country as a whole—over half of it being registered before the war began. The evidence is examined more closely in the following pages, first in relation to the incidence of stillbirths.

STILLBIRTHS

Biological considerations

It is known that the stillbirth rate varies according to the age of the mother and the order of pregnancy. The question, therefore, arises: is the decline in the rate wholly or partly due to changes, since 1938, in the age at which women have been bearing children and the proportion of births of different orders?

National statistics throw some light on the matter, for the age and parity rates have been calculated by the Registrar-General for the second half of 1938:—

TABLE II

SINGLE STILLBIRTHS PER 1,000 ALL SINGLE BIRTHS
(LEGITIMATE MATERNITIES: ENGLAND AND WALES, 1938)

Age of Mother	Order of Birth				
	1	2	3	4 and 5	6 and later
Under 20	27	20	—	—	—
20-25	31	18	20	21	—
25-30	40	22	23	30	39
30-35	55	25	30	29	42
35-40	82	39	45	46	49
40-45	116	51	60	67	67
45 plus	128	91	101	125	94
All	41	24	30	37	52

As the age of the mother increases so does the risk of stillbirths. This is true of all parities except for second births to mothers aged under 20. A second conclusion from Table II is that the stillbirth rate is highest for first parities and lowest for second. After the second it rises gradually, but the rates do not reach the level recorded for first parities until about the eighth or ninth pregnancy.

If it is assumed that the pattern of risk has remained proportionately the same throughout the period 1938-45* a reduction in the total rate might well have been brought about by a decided shift in the age at which mothers have had babies. A change in age distribution down the scale would make a bigger contribution than any transference from 4th plus to 2nd and 3rd parities.

Although no comprehensive statistics have been published there is every indication that the extraordinary high marriage rates during the early years of the war were largely due to marriages among young people. Also, it is believed that the movement towards earlier marriage, noticeable before the war, continued during 1941-5.

To what extent this factor of earlier marriage—and presumably earlier child-bearing—has influenced the reduction in the stillbirth rate is a matter for conjecture on the limited facts that are known.

In Luton a total of 375 stillbirths have been analysed for the six years 1940-5. The number is too small to be broken down into age brackets but the rates for different parities are given in Table III.

* In addition to the rates shown in Table II, the Registrar-General has also published corresponding rates for the years 1939-41. Some changes are revealed, mostly in a downward direction, but the pattern of risk remained substantially as shown in Table II. In any event, it is impossible to base any conclusions about the war-time trend of stillbirths on the figures for only 1939-41, particularly as the Government's food and nutrition policies were not fully developed until after these years.

TABLE III

SINGLE STILLBIRTHS PER 1,000 ALL SINGLE BIRTHS
(ALL MATERNITIES: LUTON, 1940-5)

	Order of Pregnancy				
	1	2	3	4 and 5	6 and later
All maternal ages	30	20	27	32	41

These results are not strictly comparable with the national data as the Luton figures are calculated on pregnancy instead of birth orders. Nevertheless, the pattern resembles that for the country as a whole, although the rates for each order of pregnancy are lower in Luton. The lower rates reflect, of course, the lower stillbirth rate in Luton during 1940-5.

It is, perhaps, significant that in 1939 the proportion of Luton women at ages 15-34 who were married was considerably higher than that for England and Wales.[1] Luton's population structure was—and still is—somewhat more youthful, and the rate of marriage—especially youthful marriage—appears to be higher than the average.

It was noticed earlier that the fall in the stillbirth rate was clearly marked in Luton before the war, while in England and Wales a significant annual reduction did not take place until 1941—the very year when the infant mortality rate rose above the pre-war average. These trends are consistent with the earlier age of marriage in Luton as compared with the country as a whole.

To sum up on this factor of maternal age, it is probable that the decline in stillbirths in Luton preceded the general decline partly because of earlier marriages and a higher marriage rate before the war.

It is difficult even to guess at the influence of changing birth (or pregnancy) orders for no comprehensive data for England and Wales during the war have yet been published. An analysis of the changing distribution in Luton reveals some interesting features :—

[1] See Table III (page 48), *Report on Luton*.

TABLE IV

LUTON: ALL NOTIFIED BIRTHS, 1940-5

	Order of Pregnancy					
	1	2	3	4 and 5	6 and later	
	%	%	%	%	%	%
1940	45	27	12	10	6	100
1941	49	27	11	8	5	100
1942	50	27	11	8	4	100
1943	51	27	11	7	4	100
1944	43	31	14	8	4	100
1945	37	32	16	11	4	100

Up to 1943 inclusive the proportion of first pregnancies increased, while that for fourth and later pregnancies diminished. If the age at which pregnancies occurred had remained the same, then, other things being equal, there should have been a rise in the stillbirth rate. But, as has already been said, there is reason to suppose that a considerable drop in the age at marriage and childbearing more than outbalanced the parity trend. If it is assumed, as it seems reasonable to assume, that after 1943 there was no further lowering of the age at marriage then Table IV suggests that a second factor, but one of less influence, came into play. This was the factor of parity with its differential stillbirth rate. The higher proportion of 2nd-5th pregnancies during 1944-5, following on the high proportion of first pregnancies of earlier years, led to a small decline in stillbirths.

What all this means is that the fall in the stillbirth rate since 1937-9 *could* be explained on biological grounds. Nutritional factors are not thereby ruled out, but it seems doubtful whether the whole of the stillbirth reduction can be explained as a consequence of improved maternal diet and ante-natal care. Nutritional factors certainly cannot explain the fall up to 1941 for it was not until then that the Government's food policies began to get under way.

It is estimated that about two-thirds of the reduction in Luton is probably attributable to biological factors. This conclusion, based on an application of the national stillbirth rates for 1938 to Luton births in 1945 analysed by age of mother and pregnancy order, depends for its validity on certain unverifiable assumptions. None-the-less, it indicates that it would be wise to make corrections for biological factors before attributing the improved stillbirth rate to effects of policies over which the nation has exercised deliberate control.

Obstetric considerations.

The Luton records can be taken a step further by an analysis of stillbirths by cause and pregnancy order. This is done in Table V (page 58).

TABLE V

NUMBER OF SINGLE STILLBIRTHS: LUTON, 1940-5 (ALL MATERNITIES)

Causes	Pregnancy Order						
	1	2	3	4 & 5	6 & later	All	%
1. Toxaemias in mother	30	15	9	3	2	59	16
2. Difficult labour (including A.P.H.)	82	25	16	17	13	153	41
3. Foetal malformations	28	8	8	3	2	49	13
4. Prematurity ...	3	8	3	1	1	16	4
5. Other defined and undefined causes ...	45	24	9	12	8	98	26
All causes	188	80	45	36	26	375	100
Related births ...	6,186	3,870	1,690	1,131	629	13,506	

In England and Wales the cause of stillbirth is not recorded when the stillbirth is registered. In Scotland, however, causes are recorded, and the data are published in the Registrar-General's reports for 1939-43. In 1943, when the total stillbirth rate was 35.6 per 1,000 total births (as compared with one of 28 for Luton during 1940-5) 10 per cent. were registered toxaemias (16 per cent. Luton), 26 per cent. difficult labour (41 per cent. Luton), 17 per cent. foetal malformations (13 per cent. Luton), while 47 per cent. were tabulated to other defined and undefined causes (30 per cent. Luton).

It is unwise to read too much into a comparison of figures as they are not all broken down by parity as well as maternal age. The high proportion accorded to difficult labour in Luton, for instance, may well be due to a relatively larger proportion of first births in the town.

It is important, moreover, to bear in mind that whereas the Scottish data are compiled from certifications without further investigation, the Luton stillbirths were all made the subject of a departmental enquiry. The low proportion of stillbirths attributable to prematurity in Luton is probably in part a reflection of this procedure—for many stillbirths attributed to this cause in the first instance prove on investigation to be reclassifiable under another heading.

The Luton and Scottish proportionate causes are not, however, widely at variance taking into account the differences in methods of collection.

The Luton series affords a useful pointer to the causes of stillbirth

and it is significant that when the proportionate causes for successive years are compared there is no evidence of a differential improvement such as might be expected if the improved rate was attributable to causes likely to be most affected by maternal nutrition.

The contribution made to the Luton rate by obstetric causes (1 and 2), suggests that any real improvement in the future (i.e., improvement which is not merely a reflection of biological factors) is likely, in the main, to result from improved obstetric practice. A substantial improvement cannot, however, be expected in this direction in the near future because a scrutiny of individual cases shows beyond doubt that a proportion of stillbirths are unpreventable in the present state of knowledge, some being due to wholly unavoidable causes.

INFANTILE MORTALITY

Infantile mortality has fallen steadily in Luton, as it has in England and Wales, since the beginning of the century. Since 1920 the Luton rate has been lower than the national rate; and for the last three years it has approached a level as low as that recorded for any town in the country. For the year 1945, for instance, a Luton rate of 32 compares with a national rate of 46; a rate, for 126 large towns, of 54; and a rate, for 148 smaller towns, of 43.

It is intended here to examine the causes of Infantile Mortality in Luton and to review changes in the Infantile Mortality rate during the period 1934-45. Table VI shows the proportionate importance of the main causes of Infantile Death, and it will be noticed that infections account for 36 per cent., and conditions present at birth or associated with birth, for 51 per cent.

TABLE VI

INFANTILE DEATHS, BY CAUSE, LUTON, 1934-45

	Number	% of all Cases	
(1) Enteritis	110	12	
(2) Bronchitis, pneumonia and other respiratory infections	162	18	36%
(3) Other infections	51	6	
(4) Developmental and wasting disease (excluding prematurity)	60	7	
(5) Prematurity	206	23	
(6) Birth trauma	50	6	51%
(7) Congenital malformation	135	15	
(8) Miscellaneous	122	13	
(9) All causes	896	100%	

In Table VII grouped causes are analysed according to whether death occurred before the age of 4 weeks (neo-natal) or from 4-52 weeks.

TABLE VII

INFANTILE DEATHS, LUTON, 1934-45 (ACCORDING TO AGE AT DEATH)

Grouped Causes	Under 1 year		0-4 weeks		4-52 weeks	
	No.	%	No.	%	No.	%
1. All Infections	323	36	38	4	285	32
2. Conditions present at birth or associated with birth (4+5+6+7) ...	451	51	372	42	79	9
3. Miscellaneous	122	13	72	8	50	5
All causes	896	100	482	54	414	46

The table shows clearly that almost three-quarters of all infantile deaths are accounted for in two groups :—

(1) Infections at 4-52 weeks.

(2) Conditions present at birth or associated with birth at 0-4 weeks.

It is, therefore, illuminating to examine how the rates for these two groups have changed during the four three yearly periods (1934-45). This is done in Table VIII below :—

TABLE VIII

INFANT DEATH AND STILLBIRTH RATES

	All Infections 4-52 weeks (per 1,000 live births)	Conditions present at birth, etc., 0-4 weeks (per 1,000 live births)	Total Infantile Mortality (per 1,000 live births)	Stillbirth rate (per 1,000 total births)
	1	2	3	4
1934-36	10.2	17.0	40	46
1937-39	10.6	18.1	40	37
1940-42	**15.9**	18.8	48	30
1943-45	12.5	**13.3**	37	29

Two outstanding facts are disclosed by the time trend. First, the interruption of the downward trend in the infant mortality rate during the period 1940-42 was mainly attributable to an increase in the number of deaths from infections at 4-52 weeks. This, however, was not due to measles and whooping cough because 1940-42 was a period during which deaths from both diseases were only 8 in number (i.e., an average of less than

3 per year) as against 5 deaths during 1945, when the total infantile mortality reached the new low level of 32.

The second outstanding feature is that the fall in infantile mortality from 1940-42 to 1943-45 is attributable in a large measure to a reduction in the number of deaths at 0-4 weeks due to conditions present at birth.

It has often been stated that an improvement in the stillbirth rate is reflected in a higher neo-natal mortality rate because of the greater number of weakly infants who are liveborn, only to die within the first few weeks of life. The juxtaposition of the stillbirth rate and neo-natal mortality rate in Table VIII gives the lie to any supposition that there is a necessary reciprocal relationship of this kind.

In Table IX grouped causes (Column II, Table VIII) for the periods 1940-42 and 1943-45 are broken down.

TABLE IX

MORTALITY 0-4 WEEKS PER 1,000 LIVE BIRTHS

	1940-42	1943-45
1. All developmental and wasting diseases ...	10.6	6.6
2. Congenital malformations	5.3	4.8
3. Birth trauma	2.8	1.9

It is apparent that a reduction occurred in all three sub-groups, but the greatest reductions occurred in groups (1) and (3).

It is hardly conceivable that improved maternal nutrition during 1943-5 can account for the decline in deaths from prematurity and wasting diseases, though it is possible that improved care of premature infants may account for it partly. It is most likely, however, that the biological factors of parity order and maternal age at childbirth are mainly responsible for the decline. At the moment we cannot say with finality, but the question is being pursued and will be the subject of a later report.

With regard to deaths from birth trauma, it is inconceivable that the decline is accounted for by any improvement in obstetric care, for there has been no change in the character and standard of the maternity services. The fall in this group, too, is almost certainly a reflection of a smaller proportion of first and sixth and later births referred to earlier in Table IV.

Lastly, the small reduction in the neo-natal death rate from congenital malformations is clearly due to circumstances outside our control, and this, too, it must be supposed, is a reflection of changes in parity order.

GENERAL CONCLUSIONS

I. (1) There were probably many causes at work to produce a peak of infantile mortality during 1940-2 from infections at 4-52 weeks. Climatic factors (in comparison with other years) and the incidence and type of respiratory infections are obviously implicated. Of wider importance, too, is the fact that 1940-1 were years during which changes in real earnings

were barely keeping pace with the yearly, and substantial, rise in the cost of living. Not until after 1941 did the government assume greater control of these economic matters, nor were food and nutrition policies fully developed until 1942 or thereabouts. The changes in the infant death rate during 1943-5, and the decline in deaths from infections (notwithstanding a greater incidence of measles and whooping cough) are consistent with the known development of social and economic factors during this period. One further point that can be made is that a higher proportion of first and second babies during the later years of the war may well have meant, on the average, a somewhat higher standard of maternal attention.

(2) Assuming freedom from epidemics, deaths from infection can be expected to fall at least to the pre-war level in the next few years, and improved care of the child could probably halve the present rate.

(3) A study of individual cases suggests, however, that even the higher standard of infant care and the best possible medical services would not entirely abolish deaths from these causes. In a number of cases, for instance, deaths from enteritis occurred in children who were mongols or otherwise defective and it is unlikely that they could have been saved.

(4) Looking at the problem practically, the infantile mortality rate may well continue to fall by one or two points a year during the next few years without any special effort or technical advance. This is said on the assumption that general economic stability and purchasing power are maintained. The reduction will be a natural consequence of improved education in the broadest sense—a factor which operates slowly.

(5) In the field of public health, education of the right kind is, therefore, probably the most effective long-term policy for safeguarding infants against infection, but alongside education two measures suggest themselves as being of special importance.

(*a*) A publicity campaign to inform the public about the dangers of gastro-intestinal and respiratory infections in infancy, *backed by adequate hospital and other medical resources.*

(*b*) Special provisions for the care of premature babies as the means of reducing the controllable element in neo-natal mortality.

II. (1) A conclusion of less practical significance is that the use of crude infantile mortality rates for measuring general progress, or as indices of the efficiency of one medical service as compared with another is subject to grave objections.

(2) Mortality from infectious causes at 4-52 weeks is a far more accurate measure of child care and hygiene than a total infantile death rate.

(3) The neo-natal rate is a useful index of the efficiency of maternity services and maternal health provided that it is standardised for biological factors. Failing this, it contains the germ of fallacies comparable with those referred to in the case of the stillbirth rate.

(4) In the same connection, comparison between neo-natal rates in different maternity institutions or as between institutional maternity and home maternity is obviously fallacious unless the rates are broken down for maternal age and parity order. Unless this is done, misleading conclusions may be drawn.

CONGENITAL MALFORMATIONS

Congenital malformations constitute an unreduced section of infantile mortality and deficiency. Their causes are, for the most part, unknown. A few, such as extra fingers and toes and certain limb deformities, are clearly genetic in origin, but most malformations arise out of unknown, ante-natal, environmental causes. There is some evidence that uterine infections play a part, and it is fairly certain that in some instances interference with the hormone balance of the mother or the embryo is the cause. But, by and large, we are woefully ignorant of their causes. This is understandable because the inherent difficulties of the problem are great; but it is less excusable that we are also ignorant of the incidence of these conditions at birth, and that we know little of their frequency at different pregnancy orders and as between different social classes. The following analysis, consequently, discloses points of general interest.

TABLE X

INCIDENCE OF CONGENITAL MALFORMATIONS: MUNICIPAL MIDWIVES AND BOROUGH MATERNITY HOSPITALS. LUTON, 1939-45

Main Condition	Number	Percentage
Spina Bifida	27	20
Anencephaly	30	23
Hydrocephaly	18	13
Meningocele	1	1
Talipes	21	16
Cleft palate and hare lip	15	11
Imperforate anus or vagina, and hypospadias	7	5
Supernumerary digits, web fingers and other limb deformities	7	5
Congenital heart disease	3	3
Atelectasis	1	1
Malformed kidneys	1	1
Growth on jaw	1	1
All	132	100

Note.—Multiple malformations are classified according to the principle malformation.

It is noteworthy that 57 per cent. of all malformations recognised at birth were defects of the central nervous system. Since, however, 48 were stillborn and 9 died before the midwife ceased to attend or before the mother was discharged from hospital, there were only 19 survivors with these deformities at 14 days or thereabouts. One infant with congenital limb deformities was also stillborn, and one infant with cleft palate and hare lip died within a few hours. The incidence of malformations among infants aged 14 days was, therefore, as follows :—

Central nervous system	19		26%
Talipes	21		29%
Cleft palate	14		20%
Supernumerary digits and webbed fingers and other limb deformities	6		
Imperforate anus, etc.	7		
Congenital heart disease	3		25%
Atelectasis	1		
Growth on jaw	1		
	72		100%

Even at 14 days it is seen that deformities of the central nervous system constitute a much smaller proportion of congenital deformities than at birth. This proportion was doubtless further reduced by deaths during the first year of life.

The incidence of congenital malformations per thousand live and stillbirths for each year during the period under review is as follows :—

1939	1940	1941	1942	1943	1944	1945
7	5	13	10	9	10	9

The increased incidence during the war years was accompanied by a rise in the infant death rate from this cause :—

Luton

1934-36	...	5
1937-39	...	5
1940-42	...	9
1943-45	...	8

In the present state of knowledge it is not possible to offer any adequate explanation. An analysis, for the year 1945, of incidence according to social class and order of pregnancy in Luton showed (a) no class differentiation (b) a somewhat greater incidence among first born than among second to fifth pregnancies (i.e., 2.4 per cent., and 2.1 per cent. respectively). The numbers are too small to permit of any final conclusions, but at first sight it would seem that we must look for influences not yet defined to account for the war-time experience.

APPENDIX III.

SOME STATISTICAL ASPECTS OF REPRODUCTION

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The material on which the appended tables are based is mainly derived from two sources: (1) the central birth card containing some 40 coded facts of medical and social importance in relation to each birth; and (2) the 1945 population and fertility survey in Luton.

What is contained in one table is not necessarily related to any of the others. The facts are put on record mainly for future use, but a note is added to each table drawing attention to what seem to be the most important conclusions.

TABLE I

THE DISTRIBUTION OF LEGITIMATE LIVE BIRTHS BY AGE OF MOTHER AND TYPE OF CONFINEMENT*

Maternal Age	Borough Maternity Hospital, 1944-5 (2,370 cases)	Domiciliary midwives, 1944-5 (912 cases)	Private practice-domiciliary and private nursing homes, 1945 (452 cases)	Public Assistance Institution, 1943-5 (153 cases)
	%	%	%	%
15-20	4.3	1.1	.9	2.0
20-25	28.8	16.7	16.8	33.3
25-30	26.1	27.7	27.9	24.8
30-35	24.1	29.6	29.9	20.3
35-40	13.9	18.2	20.1	11.1
40-45	2.7	6.5	4.4	8.5
45 plus	.1	.2	.0	.0
	100.0	100.0	100.0	100.0

There are considerable differences between the four types of confinement care. The Borough Maternity Hospital takes a high proportion of young mothers; so does the public assistance institution. The former is due, no doubt, to a selection of difficult cases and to priority being given to first confinements; poverty, however, would seem to be the factor among the mothers delivered in the public assistance institution. Again, with mothers aged over 40, the institution heads the list. These are known to be mothers who already have large families; and poverty—not medical needs—sends them to public assistance. To some extent similar factors operate among the midwives' cases—economic problems and the existence of numbers of other children who cannot be left while the mother goes into hospital. This accounts in part for the higher proportion of older mothers delivered by midwives as compared with the experience of the maternity hospital. Psychological factors may also be present here; more of those

* Excluding multiple births.

mothers who approach their confinement with equanimity may prefer to have their babies at home. These women may often be found among those who have already borne at least one child. It would be interesting to know whether there is some selective process of this kind at work, and we hope to study this question more closely in 1947.

Of the cases handled by private practice, 54 per cent. were mothers aged over 30. They were not the mothers of large families for, as has been shown elsewhere,[1] 84 per cent. of all such cases were first and second pregnancies. The obstetrical work of general practitioners is, therefore, not at all typical so far as order of pregnancy and maternal age is concerned. It would seem that they have committed to their care an undue proportion of difficult cases—first confinements among older women.

One conclusion which emerges from this table is the need for caution in interpreting medical data drawn from only one field of experience—whether it be hospital, domiciliary or private practice.

TABLE II

CHILDREN BORN PER 100 WIVES CLASSIFIED BY DURATION OF, AND AGE OF WIFE AT, MARRIAGE

THE CONTRAST BETWEEN LUTON IN 1945 (WIVES AGED UNDER 45) AND ENGLAND AND WALES IN 1911

Wife's age at marriage	No. of Luton wives	DURATION OF MARRIAGE IN YEARS							
		0-5		5-10		10-15		15-20	
		Luton	E. & W.	Luton	E. & W.	Luton	E. & W.	Luton	E. & W.
15-20	345	64	128	174	292	266	438	277	569
20-25	1,259	51	103	124	244	194	361	209	461
25-30	497	52	80	104	198	144	285	195	347
30-35	142	31	69	93	170	93	222	—	248

The speed of the revolution in attitudes to child-bearing during the past few decades is clearly brought out by this contrast between 1911 and 1945. It has affected all age groups and marriage durations. It has, for instance, reduced the average number of children per wife married at age 20-25 (with an average marriage duration of $17\frac{1}{2}$ years) from over $4\frac{1}{2}$ to 2.

The change can be represented in another way. Whereas it took, for women married at 15-20 years, only 5-10 years for wives in 1911 to produce an average of 3 children, the same group in Luton in 1945 had only recorded an average of $2\frac{3}{4}$ children after 15-20 years of marriage.

The principal feature of this table is the remarkable similarity in the downward movement of fertility among wives regardless of the age at marriage or the number of years of married life.

[1] *The Lancet*, 9th November, 1946.

TABLE III

SIZE OF FAMILIES. RELATIVE FREQUENCY OF FAMILIES OF DIFFERENT SIZES BORN TO WIVES MARRIED AT AGE 20-25

Children born 1	Luton : Wives aged under 45 in 1945 whose marriages had lasted 15-20 years 2	Luton : Wives aged 45-60 in 1945 3	Luton : Wives aged 60 plus in 1945 4	England and Wales (1911 census) : Wives aged 50-65 in 1911 5
0 ...	10	11	22	6
1 ...	33	26	22	4
2 ...	28	26	13	6
3 ...	13	13	13	8
4 ...	9	9	7	9
5 plus	7	15	23	67
—	100	100	100	100

This table expresses in more specific form the effects of a falling birth rate on the size of families. Thus, in the nineteenth century 67 per cent. of all families contained five or more children, while among the latest group of Luton wives (column 2) the proportion was only 7 per cent. The steady reduction in the proportion of families of this size—from 23 to 15 and then to 7 per cent.—among different age groups of Luton mothers shows the continuing nature of the trend.

Perhaps the most striking feature of the table is that in column 2 the *commonest* family size is shown to be one child, while in columns 4 and 5 it is five or more.

TABLE IV

FERTILITY RATES FOR LUTON, 1944-5

	Age							Total 15-50
	15-20	20-25	25-30	30-35	35-40	40-45	45-50	
Number of legitimate live births to resident married women. Luton, 1944-5 ...	104	916	1,059	1,038	618	146	6	3,887
Rate per 1,000 resident married women	189	260	154	119	67	18	1	88
England and Wales. Rate for 1938	521	270	172	110	59	20	2	92
Number of illegitimate live births to resident women. Luton, 1944-5	38	130	54	46	16	5	3	292
Total number of live births. Luton, 1944-5 ...	142	1,046	1,113	1,084	634	151	9	4,179
Rate per 1,000 women	19	142	127	106	61	17	1	68
England and Wales. Rate for 1938	15	92	113	83	47	16	2	54

The above table sets out the specific age fertility rates for Luton in 1944-5. It is based on the Luton population survey and on the recorded data for births registered in the town. As corresponding national statistics have not yet been published for 1944-5 the figures for 1938 have been added to allow of some comparisons to be drawn.

The bottom half of this table shows that when all births are related to all women the Luton rates are higher than the national ones (with the negligible exception of age group 45-50). This reflects the higher birth rates of 1944-5 as compared with 1938.

But the top half of the table (legitimate births and married women) shows lower Luton rates—except for groups 30-35 and 35-40. The total for all ages 15-50 is lower—88 per 1,000 for Luton as against 92 for England

and Wales. In other words, despite the increased number of births in the town during 1944-5, there has been no rise in fertility *within marriage*. The significant increase in the rates in the bottom half of the table appears, then, to have been brought about by the high level of marriages during 1939-44.

According to the Luton mid-1945 survey the proportions married at each age were :—

*Resident Women—Proportion Married—Mid-*1945

	per cent.
15-20	7.2
20-25	48
25-30	78
30-35	85
35-40	89
40-45	88

There is not much scope here for increasing the proportion married or for lowering the age at marriage.

The situation created by a switch-over to a higher proportion of married women, with an abnormally heavy number of new marriages of less than five years' duration, shows up the limitations of the reproduction rate as a measure of contemporary fertility. In 1944-5, the gross reproduction rate (G.R.R.) for Luton was 1.14—net reproduction rate (N.R.R.) approximately 1.03. The net rate for the country as a whole in 1944 was about .98. Thus, reproduction in Luton was slightly above the national average. But, as the foregoing table demonstrates, such rates approximating to unity* do not necessarily mean that *fertility within marriage is increasing*.

Reproduction rates do not, therefore, afford much guidance to the pattern of fertility in the future, nor do they make allowance—so far as the present is concerned—for abnormal movements in marriage and birth rates.

Only when we learn that the size of families born to married couples is increasing shall we be able to say with confidence that a fundamental change in attitudes to child-bearing has taken place.

* " Unity " may be taken to mean the replacement of every mother by another mother and no more ; in other words, a community exactly replacing itself.

TABLE V

BIRTH WASTAGE IN LUTON, 1944-5 [1]

Maternal age	No. of mothers	No. of pregnancies	No. of children born alive [2] and still	No. of children surviving [2]	No. of pregnancies per 100 mothers	No. of miscarriages per 100 pregnancies	No. of children surviving in every 100 pregnancies
15-20	116	134	129	126	116	3.7	94
20-25	929	1,364	1,304	1,273	147	4.4	93
25-30	1,010	2,056	1,966	1,894	204	4.4	92
30-35	991	2,508	2,338	2,236	253	6.8	88
35-40	592	1,979	1,851	1,742	334	6.5	88
40-45	149	613	568	538	411	7.3	88
45-50	5	44	41	40	880	6.8	91
All	3,792	8,698	8,197	7,849	229	5.8	90

For obvious reasons very little is known about the incidence of miscarriages among mothers of different ages. The foregoing table sums up an attempt to estimate the *minimum* incidence. The actual experience of any large group of women will always be extremely difficult—if not impossible—to determine. For one thing, it is hard to define what is a miscarriage, while there are other factors, such as memory, which contribute to the difficulty of reaching even an approximate estimate of the actual incidence.

From the table one point, however, seems reasonably clear : the number of miscarriages to every 100 pregnancies rises with the age of the mother. It is unlikely that understatement would substantially alter this relationship to maternal age. That there has been a serious amount of understatement is shown by the following facts.

The Registrar-General, in his report for 1938 (Text) provides data on the proportions of non-surviving previous children recorded by mothers of different ages. At age 30-5, for instance, it was found that for every 1,000 survivors there were 155 recorded non-survivors. There should have been, however, according to the Registrar-General, 166 non-survivors. This understatement of dead or stillborn children was much higher at older ages, rising to 264 (as against 180 recorded) for age 40 plus. In Luton, according to the above table, there were only 46 non-survivors to every 1,000 surviving children at age 30-5. The amount of understatement appears therefore to be serious. If this is so with dead or stillborn children it must be assumed that as much—or more—understatement occurs in relation to miscarriages. Thus the miscarriage ratios shown represent the minima at each age and may be three or four times as high.

[1] Notified legitimate births. By present husband. Excluding stillbirths and multiple births (for present deliveries). All 9 plus births or pregnancies counted as 10.

[2] Including present delivery.

APPENDIX IV.

REPORT ON HEALTH EDUCATION IN THE BOROUGH

By MARTIN W. HARDISTY, M.Sc.

An Appendix to the Annual Report of the Medical Officer of Health for the year 1945 described in some detail the progress that had then been made in carrying out a comprehensive scheme of Health Education based upon the development of human biology as a normal part of the curriculum of the Secondary Modern Schools. An account was given of the inception of the scheme, of the formulation of policy and the preparation of syllabuses, and the testing of these syllabuses in the schools.

The presentation of the present review marks the end of the experimental stage. Further progress will be made along the general lines already laid down and with the advantages of the experience gained in the past two years. A wide measure of agreement now exists as to aims and methods, and there has been ample demonstration that courses of the kind envisaged in the syllabus are both desirable and practicable. Well over 1,500 children in the Secondary Modern Schools of the Borough are now receiving some instruction along the lines of the suggested syllabus, and in many cases this syllabus has been accepted in its entirety as the basis for courses in general and human biology. Further extension is now, generally speaking, limited only by difficulties of staffing and organisation. This is reflected by the greater progress which has been made in the girls' schools where there are more teachers qualified to teach biology than has been the case in boys' departments. But with more settled staffing conditions and the return of men teachers from the Services, the organisation of courses in boys' schools should be easier than has been the case in recent years.

The inclusion of sex education as a part of the syllabus of human biology has met with almost universal approval on the part of both parents and teachers. The great majority of the girls attending Secondary Modern Schools are now given some instruction in sex before leaving school and it is hoped that with the improving conditions it will soon be possible to record equal progress in the boys' departments.

The provision of courses for teachers, designed to assist them in their work, was continued in the present year. A series of twelve lectures, given by the Medical Officer of Health, the Biologist and other specialist Officers of the Health Department, was conducted in the Napier Road Lecture Theatre, and was attended by teachers from both Primary and Secondary Schools.

An important feature of the services offered by the Health Department has been the provision of specimens and demonstration materials which can be used to illustrate lessons in the classroom. These materials, which have been collected and prepared in the Department, are of a type that teachers would find difficulty in providing from their own resources. The accompanying Plate conveys some idea of the scope of this collection.

Emphasis has been laid on the use of visual aids in the teaching of biology and especially on the use of the film. Both sound and silent films have occupied a prominent place in the school courses and the responsibility for organising and showing such films has been assumed almost entirely by the Health Department. In conjunction with the Borough Police, a sound projector has been purchased and placed at the disposal of the schools. During the year about 40 film shows have been given, some in the Lecture Theatre at Napier Road and others in the classroom. Although films will still continue to play an important part in Health Education, there is little doubt that film strips will become an equally important teaching and illustrative medium. They are inexpensive to produce to the requirements of individual teachers, compact and simple in use, and consequently the film strip has many advantages over epidiascope pictures and lantern slides. Should the schools of the borough be equipped with film strip projectors it would, therefore, be possible to build up in the Health Department a library of film strips, specially produced to accompany school lessons and readily available to local teachers.

A reference to future developments may not be inappropriate in concluding this brief report. With the completion of what might be called the pioneering stage, the programme outlined in this and previous reports would seem to become increasingly a purely educational function. The initial co-operation of Health and Education Departments was an essential first step and must continue. But with the recognition of Luton as an Excepted District for Education it would seem that the main responsibility for the administration of this programme should properly rest with the Education Department, and it may be this could best be met by the appointment of a specialist officer to the staff of the Education Department. Such a step need not impair the intimate contact between the two departments which has promised so well, and there is no reason to suppose that such an arrangement would diminish either the interest of the Health Department in the progress of work in the schools, or the benefit to the Biologist of frequent access to, and contact with, the Specialist Officers of the Health Department.

APPENDIX V.

THE SITUATION OF ILLEGITIMATE INFANTS

As some time elapses between the birth of an illegitimate infant and the making of reasonably stable arrangements for its care, the following note relates to infants born between 1st July, 1945, and the 30th June, 1946.

The situation of surviving infants on attaining the age of 6 months is examined for the purpose of affording a guide to the size and nature of the problem.

The outstanding fact disclosed is the high proportion of illegitimate infants who, at the age of 6 months, are still either in the care of the natural mother or who have been adopted.

Situation at the age of 6 months of illegitimate infants born between 1st July, 1945, and 30th June, 1946.

Still in care of natural mother	123
Adopted	9
In Institutions	3
Lost Trace of	8
Under supervision of Bedfordshire County Council ...	25
	168

(9 of those known to be in the care of the natural mother had moved out of Luton before reaching the age of six months. 12 illegitimate infants died before reaching the age of 6 months).

APPENDIX VI.

PREMATURE INFANTS.

A premature infant is defined as one weighing less than 5½ lbs. at birth. The term includes, therefore, somewhat small, but healthy babies who require little more than ordinary care and management, and, on the other hand, infants who are so small that they have little chance of surviving however much care they are given.

Between these extremes are infants who, with expert attention, have a good chance of becoming healthy, vigorous babies, but who would probably not survive the ordinary rigours of early life which the normal baby meets without harm.

Special arrangements for the care of premature infants in their homes are made within the Council's municipal midwifery service, and infants who cannot be cared for at home are admitted to hospital.

Premature births which occurred during the year are analysed below according to place of birth, and birthweight.

PREMATURE INFANTS CLASSIFIED ACCORDING TO BIRTH WEIGHT

	Under 2 lbs.	2-3 lbs.	3-4 lbs.	4-5 lbs.	5-5½ lbs.	Weight not Recorded	All
Number	1	11	11	41	74	—	138
No. surviving after 24 hours ...	—	6	9	39	72	—	126
No. surviving at 4 weeks* ...	—	1	5	32	67	—	105

* Compiled 28th January, 1947

Premature Infants according to Place of Birth

Born in Maternity Institutions :—

(a)	Under control of Borough Council ...	83	
(b)	Other	38	
		—	121
Born at home			17
	Total ...		138